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Original Articles.

REPORT OF A SUCCESSFUL CASE OF EXCISION OF THE CECUM, WITH END-TO-END ANASTOMOSIS.*

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On February 5, I was called by Dr. D. R. Rodger, Woodbury, Conn., to see G. S., a married woman 54 years of age who gave a history of having had recurring attacks of appendicitis covering a period of ten years. About six weeks previously the patient and her physician stated that she had had a more severe attack than on any of the other occasions, the abdominal pain being greater, and the constitutional symptoms more marked than formerly. Since that time the patient had been unable to take nourishment, even in a liquid form, without suffering pain in the right iliac region, accompanied by severe and persistent nausea. Consequently she had accustomed herself to abstain from taking nourishment in any form for as long a period of time as possible. She was emaciated, was suffering from marked mental depression, her gums and tongue were much swollen and red, and there were various ecchymotic spots all over her body. At this time, her pulse-rate was 74 and her bodily temperature 99.4 F. On bimanual examination a tumor attached to the uterus and broad ligament, and extending up into the right inguinal region, was found. Operation was advised, and as soon as the necessary arrangements could be made, with the assistance of Dr. Rodger, of Woodbury, and Dr. A. A. Crane, of Waterbury, laparotomy was performed.

The incision was made over the right rectus muscle, the fibers of which were separated and the peritoneal cavity entered. The tumor proved to be contained in the cecum and appendix. The adhesions which bound this portion of the gut to the uterus and broad ligament and parietal peritoneum were carefully broken up and the portion of the intestine containing the tumor was brought outside the abdominal cavity, which was shut off by gauze pads. There were no enlarged mesenteric glands, but fearing a possibility of malignant disease it was thought best to divide the bowel on either side, some distance from the tumor. The mesenteric attachment was clamped off before the vessels were divided, after which the clamp was replaced by the operator's fingers, and the vessels were caught by means of forceps and ligated with little loss of blood, probably not over 1½ ounces being lost in the entire operation, including the abdominal incision. After the tumor had been removed the cut edges of the bowel were washed with a small quantity of a solution of hydrogen dioxid—12½ vol.—and the cut edge of the ileum was united to that of the descending colon by means of stitches passed from within the bowel through all the coats, and then through the bowel of the opposite side from without in, the knots being tied on the inside of the bowel, and thus bringing together broad surfaces of the peritoneum. The stitch used was the one whose utility was demonstrated by Maunsell. These stitches were placed about ⅛ of an inch apart, and carried all the way around, attaching the entire cut edge of the ileum to the colon. The caliber of the colon being greater than that of the ileum, a slit was left which was nearly closed by means of the same sutures as those which had been employed to unite the colon to the ileum, but finally a few Lembert sutures were employed to close what remained of the opening. A few Lemberts were also placed at different points over the line of union of the colon with the ileum, to insure the contact of the peritoneal coats at all points. The suture material used to unite the bowel was horse hair, and a No. 5 milliner's needle was employed. Before the bowel was returned to the peritoneal cavity the line of union was washed with a solution of hydrogen dioxid—12½ vols.—and then the abdominal cavity was washed out and filled with saline solution, and the wound in the abdominal wall was closed by means of sutures placed in layers.

The patient was returned to her bed in good condition at 5 p.m., and at 6:25 p.m. her pulse-rate was 72 and bodily temperature 99.7 F. Following the operation no morphia was given, as the patient was free from pain. She slept more or less during the night, and at 6 a.m., having no nausea, 3 ounces of milk and lime-water was given, and this was repeated an hour later. At 7 a.m. she was catheterized and a large amount of urine drawn off. On account of her bad general condition it was advised that an enema of one pint of saline solution be given twice daily. Her bowels moved twenty-seven hours after the operation, and the convalescence as far as the abdominal operation was concerned was uneventful, with the exception of a stitch abscess, but was prolonged and complicated by the bad general constitutional condition from which the patient was suffering, which was prior to operation and analogous to scurvy, as was demonstrated by the occurrence of a bloody vaginal discharge which began on the second day following the operation and continued for some time, and by the patient also having trouble with salivary glands, lungs, etc. Large quantities of foul fecal matter were passed by the patient during the convalescence, which from its decomposed odor must have been retained in the intestines for a long period of time.

In a letter dated March 14, Dr. Rodger informed me that the patient was looking well, eating and digesting her food satisfactorily, that her mouth and tongue had resumed their normal condition, and that she was up and about.

The tumor, which completely occluded the bowel, was referred to Prof. E. K. Dunham, of the New York Uni-

*Read before the New York County Medical Association.

versity, Bellevue Hospital Medical College, for pathologic examination, and his report was as follows: "Sections of the specimen you brought here to-day, Mrs. G. S. show a chronic inflammatory process, but I can find no evidence of malignant growths. The muscular tissue of the intestine is infiltrated with round cells—and the portions of the specimen which do not contain smooth muscular tissue are composed of a dense fibrous (cicatricial) tissue which is also the seat of focal round-cell infiltration. In many places the vessels show chronic endarteritis partially obliterating the lumina. A small lymph node included in one of the sections gives evidence of chronic inflammation, but there is no indication of invasion with cells from a neoplasm."

The chief points of interest in the case are: 1, the history of recurring attacks of appendicitis covering a long period of time, ten years; 2, the general condition of the patient, which indicated great bodily depression analogous to scurvy, due to the lack of proper nourishment, and to the retention for a long time of a large quantity of fecal matter; 3, the method of suture employed; 4, the small amount of blood lost by the patient during operation; 5, the early and constant use of saline enemas to improve the general condition of the patient; 6, the early administration of nourishment to the patient in considerable quantity; 7, the character of the tumor.

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REMARKS ON SERUMTHERAPY.*

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I conceive it to be my function in this discussion to lay before you some of the theories advanced in explanation of the facts on which the practice of serumtherapy is based. It seems, at the present time, quite impossible to assign to any of these theories the value of well-established fundamental principles, but they are of use as working hypotheses which correlate numerous facts and enable the mind to include many details in a single general conception. It is through the employment of such general conceptions, suggestive in character, that experimental investigation is most easily furthered. They are a necessary part of the inductive method of exploring the unknown, but it is needless to say that the utmost caution must be exercised not to regard them as expressions of invariable natural relations until the most extended observation and experimentation have demonstrated that they possess this character. Only then can we assign to these working hypotheses the dignity of natural laws. I am, then, not in a position to present a statement of laws governing the phenomena which have led to the use of serumtherapy in the treatment of disease. I can only rehearse some of the ideas which have been advanced in explanation of those phenomena by investigators who have devoted themselves to their study.

The study of serumtherapy is primarily based on the observation that animals and man may possess or may acquire resistance to a given infection or intoxication. Bacteria or poisons which are capable of producing symptoms in some species or individuals, may entirely fail to produce such effects in other species or other individuals of the same species. In some cases this immunity is inherent to the species, being manifest in greater or less degree in all individuals. In other cases it must be acquired. This fact leads to a distinction between "natural immunity" and "acquired immunity." In addition to this distinction we must also separate resistance to infection from an insusceptibility to the action of poisonous substances.

In disease due to bacteria, it is generally believed that the symptoms occasioned are chiefly, if not wholly, due to toxic substances produced through the growth of the bacteria, either in some circumscribed part of the body or within the circulating fluids. The study of immunity is, therefore, in great measure, concentrated on the relation of the organism to poisons: a chemical problem.

The transfer of the study of many of the facts concerning immunity, from the domain of simple biology to that of biologic chemistry, renders some of the earlier explanations of immunity inadequate. Thus, the idea that by their growth bacteria consume all of certain foodstuffs necessary for their continued life (the "exhaustion" theory of immunity) was rendered untenable by the fact that immunity may be conferred on an animal by the injection of the poisonous products elaborated by the same bacterial species. This observation led to the "retention" theory, of immunity, in which the products of bacterial growth were believed to accumulate and prevent a further development of the bacteria.

This hypothesis had, in turn, to be abandoned when it was shown that these products were eliminated with a rapidity out of proportion to the duration of the immunity, and that their presence in the blood did not prevent the growth of the corresponding species of bacteria.

Another biologic explanation of immunity is based on the fact that many cells of the body, but chiefly the leucocytes, incorporate foreign particles within their cytoplasm and, in many cases, destroy them. The idea that bacteria gaining access to the tissues were destroyed by the devouring activity of such phagocytes, and that immunity depended on this activity, has long been the subject of somewhat bitter controversy. The weight of evidence appears to show that, while phagocytosis may be a factor in the destruction of bacteria, it is highly improbable that cells are capable of incorporating virulent bacteria and working their destruction. The preponderance of evidence favors the idea that phagocytosis takes place only after other influences have acted injuriously on the bacteria. The blood and lymph of the body are known to frequently exert such an influence, especially when freshly drawn. Although the point is still undecided, it seems not improbable that this influence depends on enzymes or ferments which have a solvent effect on the bacterial cell and its envelope, and that this action is closely related to the phenomenon of agglutination on which, for example, the Widal test as an aid to the diagnosis of typhoid fever is based.

The most philosophic theory of immunity that has as yet been advanced is Ehrlich's so-called "side-chain" hypothesis, which is based on a chemical theory of the action of poisons.

We know that the protein molecule is one of great complexity; that by its decomposition a vast number of organic substances can be obtained, some containing nitrogen, with others in which it is not present. The decomposition products derived from protein not only depend on its chemical constitution, but also on the character of the influences bringing about its cleavage.

The chemist expresses the constitution of such complex molecules by means of formulæ containing a nucleus of closely united atoms, to which he conceives other atomic combinations, or "radicles," to be more loosely attached. These radicles, when themselves of complex constitution, are designated as "side-chains," and are

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connected in various ways with the central nucleus which binds all the radicles together into a single, complex system of atoms. Since the side-chains themselves may be composed of central, compact, atomic groups, combined with numerous radicles, enormous molecules of almost any conceivable degree of complexity may be represented in this manner, the constitution, or arrangement of the various atoms being such as to express the value of their reciprocal affinities. Into any one of these radicles, new combinations of atoms may be introduced, affecting the properties of the whole system, provided they can replace some of the radicles or atoms of the original molecule; or the molecule may suffer cleavage, splitting it into simpler combinations of chemical nuclei or radicles, and the directions of such cleavages, and, therefore, the nature of the resulting products, will depend on the conditions under which the splitting takes place.

Ehrlich's side-chain theory of immunity assumes the existence of such complex molecules within the cells of the body, that they are necessary for the normal function of the cell, and that the nutritive processes within the cell are charged with their maintenance. Substances which act as poisons enter into combination with certain definite side-chains forming a part of the molecule, and thereby affect its value in the cells, the functional activities of which are embarrassed. This occurrence does not necessarily destroy the vitality of the cell, nor does it of necessity occasion clinical symptoms, although the latter phenomenon is a frequent result. It does, however, affect the metabolism within the cell, and this calls forth nutritive efforts to replace those side-chains which have been rendered useless by union with the poison. At this point Ehrlich applies a general biologic principle expressed by the term "functional hypertrophy." Under ordinary circumstances the various active tissues of the body possess a certain reserve of organized material which can be called on in case of sudden additional demand. When that stock is drawn on, it is not merely replaced, but an additional store is laid up. Ehrlich supposes a similar occurrence to take place when molecular side-chains are rendered functionally useless by combination with poisonous substances. The nutritive processes within the cell are directed toward the production of an excess of side-chain radicles, beyond the immediate functional needs of the cell. This excess is eliminated from the cell and appears in the circulating fluids as an antitoxin. The production of this excess does not necessarily arrest a further elaboration of these side-chains, for we may conceive of a continuation of the cellular embarrassment due to the poison in spite of an abundant supply of side-chain radicles. Hypothetical as is this theory, it serves to correlate many of the phenomena that have been observed in experiments on immunity.

We must now briefly consider some of the varieties of immunity: first with reference to poisons. An animal may be naturally immune to the influence of substances that are poisonous to other animals. Examples of this "natural immunity" are familiar to us all. Rabbits are not affected by atropin. Fowls are not susceptible to the toxins produced by the tetanus bacillus. These poisons are either eliminated from the body or are burned; they are not neutralized. According to Ehrlich's theory, natural immunity would be a necessary result of the absence of side-chains having an affinity for a particular poison. The blood of naturally immune animals would contain no antitoxin because the conditions for its production did not obtain.

"Active immunity" is that which results when gradually increasing amounts of a poison are introduced into the organism. It is not essential for its establishment that toxic symptoms should be produced, but the rapidity with which the immunity is acquired bears some relation to the amount of toxin introduced within a given time, and it is therefore more rapid when toxic symptoms are developed. On the other hand, it is essential that the toxic dose should not exceed a certain tolerance, otherwise irreparable damage may result. An explanation of these relations, in accordance with Ehrlich's theory, is exceedingly simple. An excessive dose of toxin would so greatly interfere with the chemical structures in the cell as to arrest its nutritive functions. If, however, the dose be smaller, the cell has opportunity to produce side-chains similar to those affected, not only to replace them but also to create an additional store in response to the unusual demand. But the theory includes more than this. It makes it evident that the antitoxin produced must bear a definite chemical relation to the poison that has called forth its production. No such simple explanation of the specific relation between toxins and the antitoxins produced after their introduction into the body has been hitherto given.

There are still other facts connected with active immunity to which this theory is applicable. Among these is the observation that usually those animals which are particularly susceptible to a given toxin yield a correspondingly great amount of antitoxin when successfully immunized. Side-chains, which constitute the chief factor in susceptibility when they are constituent parts of a cell, become the principal agents in immunity when freed from that connection and dissolved in the circulating fluids. Furthermore, it does not follow that all the cells of the body are equally affected by a given poison. The toxic effects may be localized. This appears to have been verified in the case of tetanus, where the central nervous system, especially the brain, contains the only tissues that seem to be directly affected by the poison. Where this localization obtains, the particular side-chains having an affinity for the toxins must be confined to the tissues susceptible to the poison; in the case of tetanus they should be found only in the central nervous system. But, in that case, those tissues should be able to neutralize, at least to some extent, the toxins. Experiments with tetanus have shown this to be the case, particularly in those animals markedly susceptible to tetanus toxins. An emulsion of brain in a fluid containing those poisons has a neutralizing action on the toxins, subsequent injection of the mixture into susceptible animals not producing tetanus. The other tissues of the body do not have this power. According to the theory, they are, therefore, without side-chains having affinity for these particular toxins.

Similar experiments tend to show that the side-chains affected by the toxins of diphtheria are situated in the lymphadenoid tissues: the bone marrow, spleen and lymph-nodes. But, in this case, they do not appear to be sufficiently abundant in the normal tissues to exert much antitoxic action when the tissues are emulsified with the toxins, or, possibly, they are so bound within the cell after its death that they are inactive under the conditions of the experiment. If, however, the animal has been even partially immunized, these tissues have a distinct antitoxic value. It is as though the production of free or loosely combined side-chains had been induced by the toxins used for immunizing.

An exceedingly interesting fact is that other complex proteid poisons besides the toxins of bacterial origin produce effects very similar to the latter and can induce the production of toxins.

Let us pass to the third, or "passive" variety of immunity. It is this which has hitherto given the greatest impulse to serumtherapy. We have seen that the actively immunized animal produces antitoxic substances which are present in the blood in solution. These antitoxins remain in the serum after the clotting of the blood, and it is essentially this serum which is used in passive immunization or in serumtherapy. These antitoxins retain the specific character, possessed by them in the actively immunized animal in which they were produced, but passive immunity differs from active immunity because in the former the free antitoxins introduced into the blood are not constantly replaced by a fresh supply, but are gradually eliminated.

Experience seems to demonstrate that in order to obtain a curative result from the use of antitoxins, it is necessary to use much larger quantities than are required to confer passive immunity. This has its analogy in other chemical reactions, where a reagent in greater concentration can bring about combinations which it can not affect in a more diluted state. It seems possible that a toxic radicle may leave a side-chain, which is already partially satisfied by union with a central nucleus, to unite with similar side-chains when they are present in sufficient abundance and in a free state.

Up to this point, we have considered only the antitoxic character of immunity and have barely touched on the question of immunity to infection. Although closely related, the two conditions are distinct. An animal may be inoculated with a given species of bacterium and not suffer, because the bacteria are killed or can not develop, and yet the animal may be susceptible to the toxins produced by that same bacterial species. A natural immunity to infection is not necessarily associated with immunity to the corresponding intoxication. An interesting experiment in this connection, which, perhaps, requires confirmation, tends to show that, in diphtheria, the serum obtained from animals actively immunized through the agency of diphtheria toxins or dead broth cultures of that bacillus possess both anti-infectious and antitoxic properties; while that from animals immunized with dead bacteria freed from adherent toxins has a germicidal action on the bacillus, but does not neutralize its toxins, i. e., it is exclusively anti-infectious.

When an animal has a natural or acquired immunity to a given bacterial infection, the bacteria which gain access to the body either simply fail to multiply and die, or they become swollen and rapidly killed. In either case, they fall a prey to phagocytes, which complete their destruction. Whether the failure to multiply is due to lack of appropriate nourishment, to a sudden change of environment, or to a direct germicidal and bacteriolytic action exerted by substances within the tissues and fluids of the body are still matters of controversy. It is possible that the final result is not always brought about by exactly similar processes. It is not quite germane to the present discussion to pursue this very interesting line of inquiry, and I shall therefore leave it without entering into further particulars.

In preparing this brief prelude to a series of papers that must necessarily prove much more highly interesting and instructive, I have chosen for the thread connecting my remarks the theory which appeared to me to include in a single conception the greatest number of details concerning a very complex subject. We are not yet in a position to assert that a given poison when introduced into the system will necessarily provoke the production of antitoxic substances. All the theories relating to the subject, however suggestive, are still on trial, and we remain dependent on observation and experiment for those data which may prove of clinical value to the practicing physician and surgeon.

TUBERCULINS AND THEIR USE.*

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During the past years two different preparations have been used under the name "tuberculin" for the treatment of tuberculosis. They have been distinguished by the names "old tuberculin" and "T. R." As they are not the same in their composition, a word or two in regard to the methods of their preparation may be in place.

The old tuberculin is prepared by using a culture-medium containing beef broth, salt, peptone and 5 to 7 per cent. glycerin. The sterilized medium is inoculated with the tubercle bacilli and the cultures then allowed to grow in the thermostat for several weeks, until the germs are well developed. When the development of the germ has advanced sufficiently the flasks containing the well-grown cultures are placed in the sterilizing oven and heated for about one-half hour at a temperature of 120 C. They are then removed from the oven, the contents of each flask heated to the boiling point, and while boiling filtered through good folded filter paper. The filtrate from these germs, which is the material called "tuberculin," is then concentrated by evaporation on the water-bath, and can be diluted to any desired strength. For further purification, if desired, this filtrate may be passed through a Pasteur or other suitable porous filter, in order to remove any germs that might perchance be still present in the solution. It would, however, be impossible to find a live tubercle bacillus in this liquid, as it has been heated for at least an hour far beyond the temperature at which the tubercle bacillus is destroyed. The old tuberculin, then, so prepared, contains in solution the material which was used in the preparation of the culture-media, namely, the nitrogenous bases of the meat, peptone, salt, etc., those products of the growth of the germ which have passed into solution during their development, and also those which have been retained within the cell walls and extracted from the germs in the process of preparing the tuberculin.

The so-called "new tuberculin" or "T. R.," however, is prepared by cultivating, according to Koch, a *virulent* germ on media similar to that used for the old tuberculin, either liquid or solid media, taking the growth from the surface of the media, as free as possible from all adherent material, and extracting the cells, after drying and grinding, by means of water and glycerin. The broken and unbroken cells are removed from the solution by means of a centrifuge. It will be seen, therefore, that in this method of preparation none of the materials which enter into the composition of the culture-media are contained in the final product, but only the cell contents which have been produced by the growth of the bacilli and have not passed through the cell wall into the media on which they were developed. When the tubercle bacillus grows on artificial media, whether the media above described or a medium of mineral salts and glycerin, on which the germ will also grow, and also when it develops ordinarily in the animal body, several different substances having different properties and different effects on the organism are produced. Some of these, as already noted, are easily soluble, and pass

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quite readily through the cell wall of the germ into the culture-media, just as is the case with the poisonous substances produced by the diphtheria germ. Other of the substances produced by the growth of the germ being less soluble can not pass so readily through the cell wall, and hence can be obtained in solution only when the cells have been disintegrated. This disintegration may be accomplished by different methods, by the rubbing or grinding of the bacilli or by the application of considerable pressure. I use an adapted milk-shake machine as extractor, to advantage. Another reason why the products of the growth of the tubercle bacilli pass into solution with such difficulty, is because there is quite a thick layer of fatty and waxy material in the cell wall, which prevents dialysis.

The old tuberculin, therefore, is a solution of a mixture of a number of different substances, a few produced by the germ, others contained in the culture-media, while the new tuberculin or T. R., or tuberculoplasmin, as it is sometimes called, is a solution of the substances which have been produced within the cells as the tubercle germs develop. In addition, as the substances in the old tuberculin have in the course of preparation been subjected to high temperature, some of them have undoubtedly been destroyed or chemical changes have been produced which would render their action entirely different from those which take place normally, when the germ develops in the body. The materials in the new tuberculin have never been heated to a temperature sufficiently high to destroy the germs or affect the products.

It is scarcely necessary to refer to the use of the old tuberculin in treating disease either in experimental animals or in men. Although Kitasato[1] reported that the great difference in the life of experimental tuberculous guinea-pigs treated with tuberculin, and the life of tuberculous checks, was so great that there was little reason to doubt that the improvement was due to the tuberculin injections, nevertheless from an experimental standpoint the results have not been confirmed by others. This lack of confirmation may perhaps be due to a difference in the method of treatment followed by Kitasato, and that which has since been used by others, and perhaps also to a lack of patience on the part of the operators.

In a paper read at the Tuberculosis Congress in Berlin, in May last, Brieger, the chief of staff in Koch's laboratory, one who has had much to do in connection with tuberculin work, asserted that the old tuberculin was not without value; that the disappointing results were due largely to the individuals who used it and also to a lack of care in selecting the cases to be treated. Many cases could be cited in which, according to the different doctors, good results had been secured by the use of tuberculin, and just as many cases in which bad results were secured.

One author, Feigel,[2] in 1891, claimed that the injection of tuberculin caused an injurious influence on the life of the tubercle bacilli. He noted a characteristic change in the appearance of the germ in the animal after treatment with tuberculin, a shrinking of the germ, which became thinner and more thread-like in form and less easily colored and finally entirely destroyed.

Dr. McCall Anderson, professor of clinical medicine in the University of Glasgow,[3] calls attention to several cases in which he has used tuberculin with considerable satisfaction. He also emphasizes the point that in treating tuberculosis it is always necessary to remember that we have not only the tubercle bacillus itself to fight, but must also take care of the soil on which the tubercle germ grows. It is obvious, therefore, that in addition to any special agents the best means must be simultaneously employed to change the soil on which the micro-organism flourishes or, in other words, the best attention must be given to the nutrition of the patient.

In general the following conclusions in regard to the use of the old tuberculin seem to be warranted. It apparently has a decided curative action for lupus. It is a valuable diagnostic agent both in animals and man, and it should be used very much more extensively than heretofore in diagnosing incipient cases.

Beck[4] reports that during the years 1891-97, out of 4254 patients admitted to the institute for infectious diseases in Berlin, 2508 received tuberculin injections; of these, 1525 reacted. If we deduct from these a total of 371 cases which include phthisis, bone tuberculosis, and lupus cases that could easily have been diagnosed without the tuberculin, there remain 1154 cases in which the diagnosis was determined by the use of tuberculin. Such results certainly warrant the belief that tuberculin should always be used in skilful hands in diagnosing tuberculosis and further should always be used in determining whether the disease has been arrested or cured.

We have already noted that in the growth of the tubercle bacilli some readily soluble substances are produced in small quantity, and experiments which have been conducted, it seems to me, indicate that this readily soluble product of the growth of the tubercle bacillus is perhaps one of the most important in the beginning of the disease and also in causing the secondary changes which are very frequently, probably incorrectly, attributed to the action of foreign micro-organisms as streptococci, staphylococci and the like.

The writer[5] and Dorset have described the isolation of a substance from tubercle cultures, which substance in very minute quantity produces congestion and characteristic necrosis of tissue, noted in tuberculosis.

One year later[6] Auclair described the effect, on guinea-pigs, of injections of an ether extract made from the tubercle bacilli. He noted that this extract, when injected, produced characteristic congestion and necrosis, and further, that small quantities, from 10 to 60 mg., of this same extract injected into the trachea caused a characteristic secondary pneumonia so often observed in tuberculosis. In using this crude ethereal extract of the germs Auclair probably had the specific substance which we described in 1897, but mixed with it a considerable quantity of foreign matter which ordinarily, in the animal body, probably never enters the circulation until the disease is very far advanced, if at all. The substance, however, which causes the congestion and necrosis is probably the same as the one already referred to, and as this is quite readily soluble and can pass through the cell wall of the germ into the culture material on which the germ is developing, it is probably the specific material which causes the pneumonia. In fact, by the injection of solution of this substance, which we have extracted in a pure form, into guinea-pigs, we have been able not only to produce characteristic necrosis, but also a pneumonic appearance. If our supposition is correct, that by means of this necrotizing substance the tubercle germ can protect itself from the action of the leucocytes, and render the surrounding tissue suitable for the further development of the bacilli, and this supposition seems warranted by the results that have been obtained, then if we can neutralize the action of this one specific and most dangerous poisonous substance, the natural resisting power of the animal cell, if properly supported, can take up and

successfully continue the battle against the further action of the bacilli themselves. The tuberculin—T. R.—already described, may contain this necrotizing substance in very much smaller quantity than the old tuberculin, or may be entirely free from it, depending on whether virulent or non-virulent germs have been used for its preparation. This being the case we might naturally expect different results from the use of T. R. than from the use of the old tuberculin, in producing immunity in animals and men.

Here again, however, there is a great difference in the character of the results reported. In the hands of some workers, as Huber,[7] the immunization experiments on guinea-pigs and rabbits, with T. R. as prescribed by Koch, gave unsatisfactory results. The animals were treated for several weeks with doses of from 2 to 5 mg. of T. R., finally increasing to 20 to 30 mg. They were subsequently inoculated with virulent tubercle bacilli and after this some of them were again treated with T. R. The checks were inoculated with virulent tubercle material. The results, however, in all cases were the same, as the treated animals without exception, as well as the checks, died, and autopsy did not reveal any improvement in those treated.

Petruschky endeavored to explain these bad results on the ground that in some cases there had been an acute poisoning by a too rapid injection of T. R., in other cases a chronic poisoning produced by the injection of T. R., extending over a long time.

In some human cases reported by Raw and Abram,[8] 13 in number, 4 appeared to be cured. These particular ones, however, appeared to be especially favorable for treatment, as the disease was localized and the temperature did not indicate mixed (?) infection. In general, however, they did not consider the results any better than those which would be secured with ordinary treatment. So far as lupus was concerned, the results were very favorable.

Bussenius, reporting the results of cases treated with T. R., comes to about the same conclusions as those already mentioned, namely, that the material is very useful in cases of lupus, in some cases of phthisis which are in good condition and free from fever, but that no case can be positively cured. The length of time during which the treatment is conducted and the size of the dose should be regulated by the reaction of the patient.

It would appear, therefore, that in general T. R. has given no better results in the treatment of experimental animals or of men than those which were secured by the use of the old tuberculin, except perhaps that the secondary symptoms have not been so pronounced.

The differences may perhaps be accounted for by the fact that the T. R. was not uniform in character, and contained varying quantities of the necrotic substances produced by the germ.

Babes and Proca[9] note that if virulent tubercle bacilli are extracted with the serum from an animal that has been treated for a long time with tubercle cultures, a serum supposed, therefore, to contain antitoxin, the extracted bacilli will be found to have lost much of their virulence for guinea-pigs. The serum has apparently neutralized some of the poisons of the germ. The experiments which we have carried on for several years in endeavoring to produce a serum which might have curative properties for tuberculosis have been based on the idea of securing a serum which might have antitoxic or neutralizing properties, for at least the most dangerous of the poisons produced by the tuberculosis germ. We have injected our serum animals, therefore, with a solution of the germ poisons as free as possible from the fatty matter of the germ. Only after *several years* of treatment has the serum from these animals shown some apparent neutralizing and curative properties. The length of time required for the treatment of the animals should be especially noted. An English writer has also recently called attention to this point.

Serum from our laboratory has been used in the Loomis Sanatorium and also been tried elsewhere. The results, reported by Dr. Stubbert, are certainly encouraging. While it is difficult always to say how much of a given improvement is due to climatic conditions, and how much to special treatment, the fact that patients who have been apparently cured with serum seem to remain in better condition than others not so treated would indicate that the use of the serum has been of value. While the serum treatment of tuberculosis must be regarded as in the experimental stage, it is well deserving of further study.

It seems to me, therefore, that the results obtained with the old tuberculin and T. R., and a careful study of the poisons of the tuberculosis germ, indicate that in incipient stages, the disease may perhaps be arrested and immunity secured by injecting the products of the bacilli freed from the necrotic principle, or by treating the patient with a serum which will neutralize the necrotic poison and a subsequent use of the products of the bacilli free from the necrotizing agent. A solution of these poisons free from the necrotic principle may be obtained from *attenuated cultures.*

In any method of treatment it must always be remembered that we can at present hope to neutralize only certain of the poisons of tuberculosis germs, and that the natural immunity and resistance of the animal cell must be relied on for assistance. Therefore the best of nutrition in addition to scientific medication is absolutely necessary.

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USE OF ANTIPNEUMOCOCCUS SERUM.*

BY ALEXANDER LAMBERT, M.D.

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In presenting a short summary of the clinical use of antipneumococcus serum we will confine ourselves to the consideration of its use in pneumonia, not that its use is necessarily limited to this form of pneumococcus infection, but because the processes which we designate as pneumonia are brought about by the agency of this germ in probably 90 per cent. of all cases of this disease, and also because, although the pneumococcus infection is protean in its manifestations, pneumonia is the form with which we most frequently come in contact. Before considering the clinical use of this serum we can form a better judgment of its value as a remedy if we consider for a moment the problems necessarily involved in its curative action.

Comparing the pneumococcus serum with those of diphtheria and tetanus we find it has a different action in

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the body. These two sera we know to be antitoxic, neutralizing a toxin which is absorbed from a localized focus of infection, from which focus the germs do not spread and produce a general bacterial invasion of the body. This serum is not bactericidal, as the pneumococci will grow abundantly in it. It is bacteriolytic and the experiments of Mennes and Cacciopo best explain its action. These observers found that the serum alone had no effect on virulent cultures of pneumococci. Neither did the leucocytes of non-immune nor those of immune animals take up the germs, but where pneumococcus serum and leucocytes from non-immune or immune animals were mixed with cultures, the leucocytes in a short time became filled with the germs. Previous to the engulfing of the germs by the leucocytes, the germs showed changes in form and staining peculiarities. These same changes in the cocci were present when leucocytes were frozen and then thawed, and thus killed and their protoplasm freed and the mixture added to a mixture of pneumococcus serum and culture; thus showing some form of inhibitory action on the cocci by a combined action of serum and leucocyte protoplasm before the phagocytosis occurred. This serum therefore can not alone, unaided, bring the infective processes to a close.

In pneumonia we usually have an extensive exudate, which is within the lung but is practically outside of the body as far as the tissues themselves are concerned. The blood-vessels surround this exudate, in which are growing myriads of pneumococci, and absorb from them their deleterious products. The pneumococcus, moreover, is pre-eminently a septicemic germ and tends constantly to invade the general circulation and produce a general bacterial infection of the entire body. The struggle, therefore, is for the leucocytes and protective substances in the blood to prevent the spread of the infection into the circulation, and at the same time to bring about a degeneration of the exudate and a cessation of pneumococcic growth. The action of all pneumococcic sera which have so far been developed is to act within the blood-vessels and prevent a general septicemia, having apparently but little influence on the exudate. There is a physical limit to the amount of protection any serum will give, and the physical number of bacteria to be overcome is a serious factor in the infecting process. Any pneumococcus left alive has the power to increase in numbers and generate more and more toxin, thus requiring more and more serum. Any given leucocyte can take up and destroy only a certain number of pneumococci. For instance, if a certain leucocyte can engulf and destroy, say, six to eight germs, and can accommodate its life processes to the sum total of the toxins of these germs, it may because of contact take in say ten or fifteen, the sum total of whose toxins it can not overcome, and is itself killed. These germs then live on and grow again. To use a homely expression, the diner on that occasion then becomes the dinner of the occasion. The pneumococcus does produce a toxin, but the endeavors of all investigators so far have failed to separate it in such manner that it can be used to give a true antitoxic quality to the serum. Until this has been done we can not expect the crisis of pneumonia to occur after the injection of the serum, nor can we expect any greater action than the prevention of death from a general pneumococcus septicemia.

This power of the pneumococcus serum to prevent a general septicemia is very strikingly and conclusively shown in the laboratory experiments. The animals used in the laboratory do not succumb to a typical pneumonia, but die from general septicemia, with, however, pneumonic foci in the lungs. The investigators who have recently done most work with the pneumococcus serum are Eyre and Washburn in England, and Pane and his assistants in Italy, and the writer, who has been working constantly on this subject for the last three years in the laboratories of the New York Health Department. Pane now furnishes a serum obtained from turkeys, which he finds will protect against 3000 fatal doses of a very virulent culture. Washburn has confirmed this for Pane's serum, and finds that this serum is active against most pneumococci. Of five specimens of pneumococci it was active against four. Against one it failed to protect. The writer's experience with Pane's serum was unfortunate, as the serum failed to show any protective action whatever. This was due probably to the age of the serum, as it had been drawn four months previously and must have deteriorated. The culture used in the writer's experiments had a marked virulence for rabbits, one two hundredth millionth c.c. being surely fatal when injected subcutaneously. This dilution, plated out, showed but two to three germs. Hence the culture seemed to have the power to develop and kill when a single germ was injected. The serum the writer has used clinically was prepared by him from horses, and would invariably protect any rabbit when .1 c.c. was mixed with .001 c.c. of culture and injected subcutaneously. Using Pane's method, 1 c.c. of the serum injected intravenously simultaneously with, or twenty minutes after subcutaneous injection of the culture, would protect against .5 c.c. of the culture, that is, according to Pane, against one hundred million fatal doses. However, that is but juggling with figures and sounds startling, while it does not convey the real truth. In measuring diphtheria or tetanus toxins you have a substance in solution evenly distributed throughout the whole solution, and any definite amount means a fairly definite amount of substance which will not increase in the body. But in dealing with living germs you have particles in suspension, not in solution, and each particle is a living organism with power to grow and to multiply. As long as any definite dose of culture, which always kills in a certain time, is taken, various amounts of serum can be gauged and any variations in the strength of different sera measured with sufficient accuracy. The relative strength in animals and the necessary amounts for therapeutic use can be accurately calculated. The serum in the laboratory would invariably protect an animal against a subsequent dose of culture not too overwhelmingly large. But if the pneumococci were already in the blood in sufficiently large numbers to be proven by cultures, even large doses of the serum given for several consecutive days would not save the animal. It would prolong life but not save it.

The limits of this paper forbid any further discussion of the facts leading up to the clinical use of pneumococcus serum, and we will now consider the various sera used in pneumonia, and the results obtained. Lara has used both rabbit and dog serum in 10 cases of pneumonia, and obtained recovery in all. He noticed, after the use of dog serum, a nervous excitement, and after the use of rabbit serum, general agitation and a temporary aggravation of the disease. In 7 cases there was a gradual reduction of the temperature, in 3, none. The crisis, however, occurred on the third to the fifth day. Bozzolo used rabbit serum in 5 cases with 4 recoveries and 1 death. He obtained a rapid fall of temperature in all. De Rienzi has also used rabbit serum in 10 cases, and although all were severe, all recovered. Wiesbecker has used human serum obtained from patients convalescing from pneumonia, and he claims to have obtained a

striking improvement in the general symptoms, but no crisis occurred.

Pane's turkey serum has been used extensively in Italy, and many physicians have reported favorable results. The temperature has been lowered by it, the pulse improved and the actual number of deaths has been lower than these same physicians were able to obtain by any previous method of treatment. Massalongo, for instance, is very positive that Pane's serum prevents the extension of the pneumonic process and assists resolution. He tried it in 7 cases and states that in alcoholic patients and those suffering from nephritis and endarteritis, the serum will save many patients who otherwise would die. Bordoni used the serum in an epidemic of pneumonia, and says he was able to obtain a lower death-rate than he previously had been able to do. He believes that the serum acts more on the general condition than on the local process. De Rienzi has injected 200 c.c. in twenty-four hours, with no ill effect; the usual dose has been 10 to 20 c.c. twice a day. In 32 cases he reports 29 recoveries and 3 deaths. In 7 the serum has been injected intravenously. Dr. Antonio Fanoni, of this city, last August reported (*N. Y. Med. Jour.*) 6 cases of pneumonia treated with Pane's serum. He obtained 5 recoveries and 1 death. The improvement noticed was in the general condition and feeling of the patients, a lowering of the temperature and an improvement of the pulse. The disease ran the usual course of six to ten days, and the temperature came down by lysis. Dr. Fanoni firmly believes in the efficacy of the serum and that the patients showed distinct improvement after its use. The patient who died recovered from her pneumonia but died of a complicating pericarditis.

Many others might be quoted in Italy, who have used the serum, but this must suffice as giving the general consensus of opinion. Those who have expressed opinions there against it seem to have done so on theoretic grounds, or have used it in only minute doses and have not given it a fair trial.

The writer's own experience with his own serum has been confined to 12 cases of pneumonia, with 9 recoveries and 3 deaths. Summarizing the impressions obtained, the serum seemed to cause a slight reduction of temperature and an improvement in the pulse. It did not cause a crisis in any case, nor seem to cut short the pneumonic processes. It did cause the disappearance of the pneumococci from the general circulation in one patient, although it did not prevent the development of an empyema, and the patient made a good recovery. Another patient with double lower pneumonia complicated with a furious delirium tremens recovered, relapsed with a double upper and right middle lobe pneumonia and recovered. The serum in this patient seemed to be of decided benefit, and the patient showed improvement after its use. In two of the patients who died, both alcoholics, the serum had absolutely no effect. The leucocytosis was not influenced by the serum except in one patient, in whom it was increased by 10,000 an hour after the injection. It had fallen again by the next day. I have not persisted in the use of the serum because I could not see that it shortened the duration of the disease nor held in check the pneumonic processes within the lungs. In one or two patients I honestly believe it did marked good; in others it was useless.

The pneumonia serum at present does not seem to shorten the duration of the disease, nor cut short the pneumonic processes in the lungs, nor bring about the desired "crisis." But it does seem, in certain cases, to prevent a general pneumococcus septicemia, and thus in these cases it may save life.

There are problems in obtaining pneumococcus serum which at present baffle and puzzle us, and whether these can be solved can not be answered yet. This is no cause for discouragement, but simply one for continued work. Until we can obtain a serum which will distinctly cut short the disease processes, the antipneumococcus will be limited in its use and its usefulness.

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USE OF DIPHTHERIA ANTITOXIN IN THE TREATMENT AND PREVENTION OF DIPHTHERIA.*

BY WILLIAM H. PARK, M.D.
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The final test of the value of diphtheria antitoxin in diphtheria is the results derived from its use. The difficulty, however, of knowing what would have been the course of a case, if antitoxin had not been used or had been used, is so great that it is well to gather proofs from other possible sources, as well as from personal experience. Therefore, I will consider certain facts derived from laboratory experience and from statistics.

Is the diphtheria bacillus capable of growing in the human throat and there producing poisons, which when absorbed and brought in contact with the cells of the body excite processes which we call diphtheria? The truth of this is established. Personally I know of three instances in which the virulent bacillus we use in our laboratory was sucked into the mouth by mistake. In two severe diphtheria developed within sixty hours, and in the third no harm resulted.

Almost countless investigations have shown that in undoubted cases of what we would call real diphtheria, the diphtheria bacilli are present in the local lesions and can be detected there when properly sought. I believe that all who know about this subject agree with this.

Are there any diseases which simulate diphtheria in which other micro-organisms than the diphtheria bacilli are the exciting factors? Certainly there are diseases due to other bacteria, whose local lesions or general symptoms closely resemble those of certain types of true diphtheria. By this I do not mean that these other diseases even have all the characteristics of well-developed, true diphtheria, nor that one who is experienced can not tell in most instances clinically whether a well-developed case is or is not due to the diphtheria bacillus, but I mean there are cases of "croup" or "tonsillitis" in the exudate of which no man can say, from merely looking at it, what bacteria are growing and producing their poisons. This is true of the diseases of other regions. Very often it is impossible for a physician to say whether a pneumonia is due to the pneumococcus or to the influenza bacillus. Or again, there are drug and serum rashes which can not be differentiated from atypical cases of scarlet fever. No one would say that a serum rash and a scarlatina rash were due to the same infection, or that the after-effects or the danger of communication were in both equal.

Perhaps some are thinking: "What difference does it make, anyway, so far as treatment goes, what bacteria are the exciting factor?" It makes every difference, for we are here dealing with bacteriologic remedies, and the different antitoxins act only, or at least chiefly, on one bacterial poison. Thus diphtheria antitoxin completely

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neutralizes the poisons produced by diphtheria bacilli, and so far as we know those only.

Let us dwell a moment on the action of diphtheria antitoxin on the diphtheria toxins. When a minute quantity of diphtheria antitoxin is mixed with a large amount of toxin, it neutralizes the poison completely in about twenty minutes, so that the mixture, when injected in an animal, is an inert substance. Recent investigation seems to prove that the antitoxin acts in the body also on the diphtheria poison. We see, therefore, why we have to inject the antitoxin early in the disease, for its action is to render harmless the toxin circulation in the blood, but not to cure nor even help the injuries already suffered by the cells.

One other bacteriologic fact must be noted before considering the practical results of the use of antitoxin. The body at the same time may be invaded by more than one micro-organism. Clinically, we all recognize that we may have a scarlet fever and a diphtheria together. Less clearly, probably, we recognize that an otitis media, a pneumonia or a septicemia occurring in the course of diphtheria is usually really just as much, as in the example just given, the addition of one or more diseases to one already existing, i. e., in bacteriologic language, an invasion of the body by more than one variety of bacteria at the same time. Now, against the poisons of these other micro-organisms the diphtheria antitoxin is helpless. This is another reason for using it early, as these secondary pneumonias and septicemias come as a rule only when the diphtheria poisons have paved the way by their cell injuries. Of those who feel that the advocates of the diphtheria antitoxin treatment mislead themselves by their desires, I would ask why it should be that we believe so strongly in the value of diphtheria antitoxin and yet at the same time believe that no other protective serum has shown great value? Is it not because the evidence of years in diphtheria is for the serum treatment, while in other diseases the evidence is for the serum being of either little or no appreciable value. In diphtheria everything is favorable, for we have a strong antitoxin and we can diagnose the disease before constitutional poisoning has developed. In tetanus we have an equally strong antitoxin, though we can not make our diagnosis on the appearance of the wound, but only after development of general symptoms due to the cell poisoning.

Let us now turn to a few statistics, which I shall give as fairly as I can:

TOTAL NUMBER OF DEATHS FROM DIPHTHERIA FOR THE PAST 20 YEARS IN NEW YORK CITY (MANHATTAN AND BRONX BOROUGHS).

A study of diphtheria statistics in New York will show that the actual number of deaths from diphtheria before 1895 did not vary much for a number of years. The influence of the increase in population was counteracted by our better knowledge of how to handle the disease. About every sixth year the deaths would mount to 3000, and then diminish gradually to about 2000. Thus for the fifteen years previous to the introduction of the use of antitoxin, the average number of deaths per year from diphtheria and croup was 2373; highest number 3287 (1881), lowest 1653 (1883). In the year previous to the beginning of the use of antitoxin (1894) the deaths were 2870. In the past four years, during which antitoxin has been quite generally used, the deaths have averaged 1341 a year, more than 1000 less than the average of the previous fifteen years. During the past two years the average deaths number 1005, or 600 less than the smallest number in any year since 1880.

In Boston, Dr. McCullum has informed me, previous to 1894 there died yearly, from diphtheria, from 15 to 18 persons in every 10,000 inhabitants. In the past four years the average number has been 7, and in the past two years less than 4 (3.6).

The great reduction in the number of deaths from diphtheria in almost every place in the world since the general introduction of the antitoxin treatment may not be entirely due to the effects of the diphtheria antitoxin, but certainly the fact is so striking that it rightly tends to make us believe that a large portion at least of this saving of life is due to its use.

Let us turn a moment now to consider the results in cases actually treated with antitoxin. We will first take up cases of diphtheria among the poor of New York, injected with free antitoxin by department of health inspectors and by physicians, from Jan. 1, 1898, to Jan. 1, 1900. The total number amounted to 2528, of which 302 died, a mortality of 11.9 per cent. All of these had diphtheria (clinically) and all showed diphtheria bacilli in the cultures made. Considering the nature of the cases I believe that without antitoxin the mortality would have been at least doubled. Of these 2528 cases, there were 802 in which the larynx was affected; 185 died, a mortality of 23 per cent.; 191 were intubated and 69 of these died, a mortality of 36.1 per cent., certainly not a bad result when you consider the conditions; 70 per cent. of the 2528 patients were under 5 years of age.

One word as to the important point of the day of disease on which treatment was begun: Of 319 injected on the first day, 13 died, a mortality of 4 per cent.; 850 were injected on the second day, and 57 died, a mortality of 6.7 per cent.; 573 were injected on the third day, with a mortality of 12 per cent. The value of the early injection is apparent. These figures, as before stated, include all cases injected; some died within a few hours of being seen, the antitoxin only being administered because the physicians desired it. Many had complicating diseases, e. g., 25 had scarlet fever.

IMMUNIZATION WITH DIPHTHERIA ANTITOXIN.

The department of health inspectors immunized, from Jan. 1, 1895, to Jan. 1, 1900, 6506 cases, of which 28 developed evidences of diphtheria within twenty-four hours; all recovered. After twenty-four hours and within thirty days, 27 cases of uncomplicated diphtheria developed, and all these recovered. The only one of these patients dying within one month was one with scarlet fever and diphtheria, who died on the second day of illness. We have, therefore, among 6506 persons, mostly children and mostly exposed directly to diphtheria, no fatal cases of diphtheria developing within thirty days, with the exception of the one having scarlet fever.

About 3 per cent. of the persons injected showed rashes, and about .5 of 1 per cent. more or less febrile disturbance. In several the symptoms were quite distressing for from twenty-four to seventy-two hours, but in no case, however, did any permanent injury, so far as we could detect, result. For the use of the above statistics I wish to thank Drs. Biggs and Billings.

The high mortalty at the Willard Parker Hospital is due to the condition of the children sent there. A great many come there late in the disease, when septic or exhausted from prolonged obstruction to their breathing. These are unsuitable for any treatment, especially for that of antitoxin, which must be given early to exert its beneficial effects.

In Boston, where the hospital is centrally situated, instead of regarding it as a last resort the people endeavor to gain entrance to it, so that last year more than one-

half of all the cases were treated there. For the past two years their mortality percentage in the hospital has only been 12.5 per cent., nearly as good as that obtained among the poor in their homes by our own inspectors.

STATISTICS OF DIPHTHERIA WARDS OF WILLARD PARKER HOSPITAL.

	ALL CASES ADMITTED.			INTUBATION CASES ONLY.		
Year.	Number.	Died.	Mortality.	Number.	Died.	Mortality. Per cent.
	ANTITOXIN NOT USED.					
1893	343	108	31.48			
1894	699	204	29.33	47	40	85
	ANTITOXIN USED.					
1895	778	190	24.42	154	114	74
1896	823	205	24.91	143	101	71
1897	844	214	25 36	130	92	70
1898	593	109	18.38	115	46	40
1899	758	192	24.24	150	90	60
1900, Jan. and Feb				45	25	55

Average mortality before use of antitoxin, 30.41 per cent.
Average mortality since use of antitoxin, 28.46 per cent.
Mortality six months previous to use of antitoxin in intubation, 85 per cent.; for last two years, 52 per cent.

A very interesting test of the value of antitoxin in diphtheria, even under the conditions met with at the Willard Parker Hospital, was tried a year ago last summer. For six weeks only every alternate case received antitoxin. Dr. Winters looked after the treatment of those not receiving it, and Dr. Berg, I believe, those receiving it. I carefully watched both series of cases, and the difference was very marked in favor of the antitoxin series. Even Dr. Winters did not ask to have the test prolonged. Before 1892 no culture examinations were made and all suspected cases were admitted. In 1892 culture examinations were made after admission to the hospital, but all cases were kept. Thus, in 1892, 492 were admitted, and 113 died, a mortality of only 23 per cent. Of those containing diphtheria bacilli the mortality was, however, 34 per cent., the others having a mortality of only 3 per cent. In 1891 the mortality in all cases of suspected diphtheria was 26.32 per cent.

ADMINISTRATION OF ANTITOXIN IN DIPHTHERIA.

The serum should be clean looking and sterile and not over six months old. It may or may not have in it a small percentage of trikresol or carbolic acid. Our own has no antiseptic added. Diphtheria antitoxin is measured in units, not grains. A unit is the amount of antitoxin which protects a guinea-pig from 100 fatal doses of toxin; all the physician needs to remember is the number of units to employ.

Antitoxin is put up in different grades, the lower grade having 100-300 units in each c.c. of serum, the higher having 400-600 units. Other things being equal, the higher grades are better and more convenient than the lower ones. In the laboratories of the New York Health Department we have, until recently, striven for a serum which had the greatest possible amount of antitoxin in each c.c. In the future our effort will be to get the highest grades of serum which will not produce rashes, for we find that the serum extracted from the blood from different horses, and even from the blood of the same horse, at different times, varies not only in the amount of antitoxin it contains, but also in the amount of substances which cause rashes, fever, etc. A serum should therefore first be chosen because it has proved not to be irritating, and then only because of its grade. Samples of all bleedings will be used first in a few mild cases and then only those serums which pass this test without giving rashes will be used. In the course of a few months we hope that we will have no serum at the stations, or in use by our inspectors, which will produce rashes or other deleterious results in any except a very few extremely susceptible persons, and even in these that no serious effect will be noticed.

AMOUNT OF ANTITOXIN TO BE ADMINISTERED AND THE NUMBER OF INJECTIONS IN A SINGLE CASE.

There is still some difference of opinion among competent observers as to this. Our practice is the following: Patients seen early, in whom the onset is mild, 1000 units; those seen early in whom the onset is severe, either as shown by local signs such as swelling, hyperemia or, extent of exudate or by constitutional symptoms, 2000-4000 units, according to severity; those seen after the disease has progressed so far that its local extent can be guessed, mild cases, 1000-2000 units according to size, moderate ones 2000-3000 units. Severe, showing necrosis, swollen glands, laryngeal stenosis, receive 3000-4000 units.

The effects to be expected are that the local disease should not extend, that the swelling and hyperemia should lessen and the constitutional symptoms abate. If these changes have not begun to clearly manifest themselves twelve hours after the injection it should be repeated. If in twelve hours more no decided improvement occurs, which rarely happens excepting in cases already very severe when first injected, still a third dose should be given; some even advise a fourth. The extent of the disease rather than the size of the patient guides the dosage; still, size should be considered somewhat, and I should not advise, in a child under 1 year, more than 3000 units at a single injection, and under 6 months, not over 2000. If the cases are severe, injections should be repeated just as in larger children. In adults attacked with malignant diphtheria, the largest doses mentioned should be used and fearlessly repeated. With the serums as now used, both ours and those of other manufacturers, these large doses have produced, in a small percentage, very disagreeable, but in so far as I know no dangerous, results, namely, rashes, fever and, in a few, joint inflammation. In the hospital, in some of the severe laryngeal cases the course of the disease has undoubtedly been unfavorably influenced by the development of rashes, fever, desquamation, etc. Most of these, the majority seeing the cases, believe to have been a complicating scarlet fever. They looked in every way like it. Others believe that it was antitoxin.

Whether some samples of serum may or may not cause, along with their beneficial effects, really serious deleterious effects is a question; still, we know that many samples of serum produce practically no disagreeable results. I have seen 60 patients treated with but one rash resulting. I have also seen twenty treated with ten rashes developing. To select good serum and throw away the irritating is only a matter of expense. At present I see no other way of eliminating rashes and other deleterious effects from substances in some sera.

In closing let me simply say that from my own almost constant observation of diphtheria during the past eight years, that is both before and since the introduction of antitoxin, I believe that the early use of antitoxin does great good in diphtheria, and that it should be used immediately in all patients where the onset is active without waiting for cultures. In mild cases already fully developed or on the mend when first seen the use of antitoxin is a matter of minor importance, as they will do well anyway. Let me also recommend its use in all suitable cases for immunization. It gives us a guarantee of at least two weeks of safety, and this period can be lengthened at will by repeating the dose.

REMARKS ON THE BACTERIAL THERAPY OF YELLOW FEVER.*

BY CHARLES B. FITZPATRICK, M.D.

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Dr. A. H. Doty, health officer, who was to have addressed you to-night, has asked me to take his place and say a few words in a non-technical way on the general subject of the bacterial therapy of yellow fever. This perhaps will be best accomplished by taking a few extracts from a report which I am preparing on the bacterial treatment of yellow fever, and adding thereto the observations of other investigators.

Our experience with the bacterial therapy of yellow fever embraces: 1, the use of the blood-serum prepared from the bacillus icteroides of Sanarelli; 2, the use of the toxin of the bacillus icteroides employed as a vaccination fluid, and 3, the use of a prophylactic fluid prepared, according to Haffkine's methods, from this bacillus and the colon bacterium found at autopsy in the liver and heart blood of yellow fever patients.

The serum prepared from the bacillus icteroides was used on 4 patients with yellow fever at the Swinburne Island Hospital, 8 at Vera Cruz and 1 at Havana. The Vera Cruz cases were diagnosed and injected by Dr. Barnard, of Charleston. The results of the observations on the first case—that of Mr. Lackey—appeared to indicate a curative effect due to the serum, but the results as a whole indicate that the blood-serum prepared from the bacillus icteroides does not cure nor modify the course of the disease in any way. The above cases were selected ones, i. e., not too far advanced. The serum employed was prepared by me and 5 to 10 c.c. were required to cure a guinea-pig, weighing 250 gms., which had been injected with a fatal dose of the culture. This was the strength of the serum obtained by Sanarelli and employed by him.

Sanarelli[1] reported 22 cases of yellow fever treated by his serum, with 6 deaths, a mortality of 27 per cent. He claims that these results prove his serum to be curative. He also reports having used it with success in immunizing the inmates of a prison.

Dr. Archinard, of New Orleans, treated 11 patients with Sanarelli's serum, and could trace no modification nor cure of the disease due to the serum. The serum employed by Dr. Archinard was imported from South America, where it had been prepared under Sanarelli's direction. Dr. Wasdin, of the United States Marine-Hospital Service, also used the imported serum on 3 patients and noted no curative effects. I have endeavored to make the serum stronger, but have not succeeded. Professor Lutz, of Santos, Brazil, also states that the serum is not effective. The above results do not agree with Sanarelli's and indicate that the serum of the bacillus icteroides is not curative in man.

Dr. B. Baker, acting under instructions from the New York health officer's department, injected a number of yellow fever convalescents at Vera Cruz with 1 c.c. of the toxin of the bacillus icteroides (San.). The reaction caused by this injection in 6 cases showed Faget's pulse and temperature, namely, a rising temperature with a falling pulse. This pulse and temperature is held by Faget and others to be diagnostic of yellow fever. This observation is very interesting in its relation to the bacillus icteroides being the specific cause of yellow fever, but is by no means conclusive. If the bacillus icteroides be the specific cause of yellow fever, this observation tends to show that the acquired immunity of the disease is only a partial immunity, i. e., it may protect against the infection, but does not protect against the toxin.

The use of the prophylactic fluid prepared according to Haffkine's methods, from the bacillus icteroides and the colon bacterium obtained from the blood of yellow fever patients, has given favorable results in animals but has not as yet been employed on man.

Dr. Agramonte, of the U. S. Army, has recently tried serum obtained from the veins of yellow fever convalescents on 4 patients with yellow fever, on or before the fifth day of the disease, and states that he succeeded in modifying the course. This method has been used before and, apart from the difficulty of obtaining enough serum, has not given very promising results.

To summarize: The serumtherapy of yellow fever is still in the stage of investigation and does not appear to warrant any conclusions other than that the blood-serum of the bacillus icteroides does not cure nor modify the disease, and that further investigation is necessary.

Criminal Court Building.

*Read in a symposium on Serumtherapy, before the New York County Medical Association.

1. Annales del' Institut Pasteur, May, 1898.

ANTIRABIC SERUM IN THERAPY.*

BY ROBERT J. WILSON M.D.

NEW YORK CITY.

Up to this date attempts to inaugurate a serum treatment for rabies have not, so far as we know, proved successful. Tizzoni and Centanni, following in the lead of Valli, succeeded in immunizing animals with a virus attenuated by peptonization, and from such immunized animals obtained a serum for which they claimed both a preventive and a curative value. Briefly, their method was to give the animal to be immunized seventeen injections in a period of twenty days, each injection representing .25 gram of virus for every kilogram of the weight of the animal being immunized. After twenty-five days the animal was bled and the serum collected in the usual way. The immunizing dose of serum was represented by one part of serum for every 25,000 parts of body weight.

The report of their work showed a high degree of protective action in the serum. The method of inoculation of their test animals, however, is open to criticism and can not fail to cast a doubt in the mind of the reader as to whether the protective effect of the serum was rather apparent than real. This doubt is emphasized when we find that the serum is to be used only in conjunction with the already recognized effective preventive inoculations. There is a class of cases, however, where the serum, although of only doubtful value, might be used, that is, in cases where a long time has elapsed between the time of infection and the commencement of treatment.

As is well known, the Pasteur method of preventive inoculations is wholly without effect after the advent of symptoms, and it is in just such cases as these that the serum, if it has any value at all, might do good. For if it has the curative action claimed for it, even in a low degree, it might retard the period of invasion of the disease and thus allow the preventive inoculations to become effective.

The serum, unlike the attenuated virus, which depends on certain changes in the organism after inoculation to procure immunization, gives its protective action immediately on administration.

352 West 117th Street.

*Read in a symposium on Serumtherapy, before the New York County Medical Association.

ANTISTREPTOCOCCUS SERUM.*

BY HOWARD LILIENTHAL, M.D.
NEW YORK CITY.

Three years ago I reported my impressions of the efficacy of antistreptococcus serum based on experience with 5 or 6 cases. In some of these the presence of the streptococci in the wound-discharges had been demonstrated, and in others staphylococci had been found both in the discharges and in the blood on culture. At that time my conclusion was that the serum rarely if ever did harm, and that in desperate cases the patient should be given the benefit of this treatment in connection with other and better known therapeutic measures. Further acquaintance with the subject has not caused me to modify the views I then held, though the percentage of recoveries due, apparently, to the employment of the remedy has not been encouraging.

Several cases in which there were clinical symptoms of the severest type of sepsis seemed to yield to the serum treatment instituted before it was possible to make an accurate diagnosis; but they one and all turned out to be either staphylococcus infections, or *local* streptococcus infections with constitutional symptoms but with no bacteria in the blood. No patient whom I have observed has ever recovered when streptococci have been clearly demonstrated in the blood stream. Recovery, however, is by no means uncommon when staphylococci—even in the blood—are the offending germs.

In my earlier cases the dose of the serum was, probably, far too small. If the fluid as usually prepared is to have appreciable effects, not less than 20 c.c. at a time should be given, while the toxic dose is, so far as I am aware, unknown.

Troublesome urticaria has a number of times followed the use of the serum, and has been regarded by me as one of its untoward effects. Abscesses containing streptococci appeared at the site of the injections in one case where the germs had been previously demonstrated by blood culture. The serum in this instance was obtained from the laboratory of the New York Board of Health, where it had been carefully tested and proved sterile. The injections, perhaps acting as traumatisms, seemed to cause places of lessened resistance which were directly attacked by the bacteria from the blood. The abscesses became very large before they caused noticeable local symptoms, though they were diffuse and even phlegmonous in character. The patient finally died. The case was one of general sepsis following amygdalitis with secondary cervical abscess. From two to three doses of 20 to 40 c.c. were given daily for eight days. The only fairly constant effect of each dose seemed to be a temporary lessening of the delirium.

I would outline the indications for the use of the antistreptococcus serum in the following manner:

Whenever there is severe sepsis with a visible cause, the first thing to do is to remove or thoroughly drain the contaminating focus or foci. The sediment of the urine, carefully drawn by catheter, should be stained for bacteria and examined. The discharge from the wound should be smeared on a slide, stained and examined with the microscope. Cultures should be made from the wound-discharges and from the blood.

If the urinary sediment contains streptococci the prognosis is extremely bad and treatment by the serum should at once be instituted in addition to energetic efforts by other means in the direction of general and local antisepsis.

If the patient's condition is extremely serious and streptococci are found in the smear from the wound the serum should be used.

If streptococci are found in the wound-discharge but not in the urine, and if the general condition in spite of elevation of pulse and temperature is not decidedly alarming, it is better to await the result of the blood-culture test, meanwhile treating the patient on general principles.

If no streptococci are found by these examinations, and the patient's condition is not truly desperate, the result of the cultures must be awaited, resorting to the serum treatment if the disease becomes alarming in the meantime. Blood culture is sometimes annoyingly slow, a negative examination perhaps becoming positive at the expiration of from three to seven days.

As a final word it must be admitted that the efficacy of the remedy as now prepared has not been proved.

Treatment by the antistreptococcus serum is most strongly indicated in the presence of systemic infection by living streptococci, but the prognosis still remains bad. Antistreptococcus serum may be used in any case of grave sepsis when the exact bacteriologic diagnosis is in doubt, but never to the exclusion of other rational therapy.

679 Madison Avenue.

*Read in a symposium on Serumtherapy, before the New York County Medical Association.

THE MIXED TOXINS OF ERYSIPELAS AND BACILLUS PRODIGIOSUS IN THE TREATMENT OF SARCOMA.

BY WILLIAM B. COLEY, M.D.
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NEW YORK CITY.

In a paper before the Academy of Medicine March 1, 1900, I gave a brief résumé of the cases of sarcoma thus far treated by myself with injections of mixed toxins. In the few minutes alloted to me this evening it will scarcely be possible to do more than give a short abstract of these results. My recent experience has given me no reason to change the conclusions already expressed in earlier papers; I still find the round-celled sarcoma is much less susceptible to the inhibitory action of the toxins than the spindle-celled, and the melanotic is even less affected. In regard to the method of preparing the toxins, the technique and administration, I have nothing new to add. The preparation which I still believe to be the best is the mixed unfiltered toxins of erysipelas and bacillus prodigiosus made from cultures grown together in the same bouillon and sterilized by heating to 58 C. In children and in patients much reduced in strength it is safer to use the filtered toxins. The toxins, to be of value, must be made from very virulent cultures, the virulence being kept up by frequently passing the cultures through rabbits.

The dose depends very largely on the vascularity of the tumor and the condition of the patient. The initial dose should seldom be larger than ½ minim, and the injection when possible should be made directly into the tumor itself. Strict aseptic precautions should be taken, since the administration of the toxins increases the liability to infection from other organisms if pathogenic germs are present.

In regard to the duration of the treatment, fortunately we are able to in most cases tell within three or four weeks whether or not the toxins are likely to prove beneficial. If no improvement is noted at the end of this

*Read in a symposium on Serumtherapy, before the New York County Medical Association.

time, it is seldom worth while to continue the injections. In most of the successful cases marked improvement has occurred within a week after the first injection. If improvement occurs, the toxins should be continued until the tumor has either entirely disappeared or until it has become evident that the controlling influence of the toxins has been lost, as shown by further increase in the size of the tumor. The question, how long toxins can be safely given is an important one. That they may be given for very long periods without harm to the patient, we may consider now proved. In one patient they were given for 2½ years, two or three times a week; in another, with eight-times-recurring spindle-celled sarcoma of the chest wall, toxins were administered with occasional intervals of rest, for three years. It was held in check by small doses. The patient, a well-known physician, is at present in perfect health, five and a half years from the beginning and two years from the cessation of the treatment.

In order to properly explain the curative action of the erysipelas and bacillus prodigiosus toxins on sarcoma, I am more than ever convinced that this action can be explained only on the theory that sarcoma is of microparasitic and infectious origin. Furthermore, I believe that the action of the toxins furnishes additional evidence in support of the infectious origin of cancer. In view of the steady accumulation of successful cases treated by the toxins, the earlier attempts to explain the disappearance of these tumors on the theory of mistaken diagnosis no longer demands consideration. If these cases are to be excluded, the same reasoning would demand excluding successful cases following operation. Those treated with toxins have been submitted to far more severe tests than usually applied to operative cases, the clinical and microscopic diagnosis having been confirmed by a number of surgeons and pathologists.

After an experience of upward of eight years with this method of treatment, the question may be fairly asked: Has this method any permanent value and, if so, what are its limitations and dangers? The question of the permanent value can best be answered by giving a résumé of the final results of the cases thus far treated. My time will permit only a very brief abstract of these results. I would like, however, to call your attention to one patient whom I had the pleasure of showing at the meeting of the Academy, March 1, of this year, in perfect health more than seven years after treatment. This patient was referred to me in January, 1893, by Dr. L. Bolton Bangs, with a very large spindle-celled sarcoma of the abdominal wall and pelvis. A portion of the tumor was removed for examination and the diagnosis of spindle-celled sarcoma made by Dr. H. T. Brooks of the Post-Graduate Hospital. The tumor was of large size, extending nearly to the umbilicus and growing rapidly. The patient's condition was regarded as hopeless. I began treatment with the mixed toxins, Jan. 3, 1893, at the New York Cancer Hospital. Injections were made directly into the tumor. Treatment, with occasional intervals of rest, was continued nearly six months, at the end of which time the tumor had disappeared. The boy has remained in perfect health up to the present time, and is now a vigorous man weighing 160 pounds.

In January, this year, I presented before the Surgical Section of the Academy the patient who, in August, 1897, was treated with toxins for a recurring, rapidly growing, and totally inoperable spindle-celled sarcoma of the parotid, with secondary involvement of the glands of the neck. The tumor entirely disappeared, and the patient is in perfect health 2½ years after treatment.

A very large spindle-celled sarcoma of the abdominal wall in which the diagnosis was confirmed by Dr. Whitney, pathologist to the Massachusetts General Hospital, and considered inoperable and hopeless by Dr. Maurice H. Richardson, was treated in October, 1894, with the result that the tumor entirely disappeared. The patient remains well 5½ years after treatment.

These patients, though not more important nor more interesting than many of the others, are simply given as types of those in whom toxins have been successfully used. Those who have been traced to the final results now prove that the action of the toxins may be properly called curative. Many of these have already passed the period of time which would be regarded as sufficient to establish them as cures after operative procedures. Of cases treated personally, 13 have passed the 3-year limit. It is but fair to state that 1 of these had a recurrence 3¼ years after treatment and died six months later. One is now well seven years after treatment; 3 are well six years; 2, five years; 7, three to five years; 4, two to three years; 3, one to two years; while 3 others have been observed less than one year. Three in whom toxins caused the disappearance of the tumor were followed by a recurrence in varying periods of seven months in 1; two years in 1; and 3¼ years in 1. These in a way are of the greatest importance, inasmuch as they establish the correctness of the diagnosis beyond a doubt.

I might mention two other successful cases in which the treatment, though begun in one case, personally, and directed in the other, was carried out by other surgeons. One of these, a spindle-celled sarcoma of the palate and fauces, very extensive and totally inoperable, is well six years after treatment; and the other, an inoperable spindle-celled sarcoma of the breast, in which the diagnosis was made by microscopic examination and confirmed by Dr. W. H. Welch of the Johns Hopkins Hospital, is now in perfect health four years after treatment.

In regard to the type of tumor in which success is most likely to attend the treatment, 11 of my own successful cases were of the spindle-celled variety, and but 4 round-celled. Of others, 3 were mixed-celled sarcoma; in 4 the diagnosis of sarcoma rested on clinical signs aided by the history of rapid recurrences in many cases.

To estimate the success very roughly by the percentage, in about 50 per cent. of the spindle-celled sarcoma, the tumor entirely disappeared, and in nearly all of the mixed variety improvement was noted, while in round-celled sarcoma only about 5 per cent. were successful.

In a former paper[1] I gave a report of 35 cases of inoperable sarcoma treated by other surgeons by the same method, with complete or partial success. In 26 the tumor entirely disappeared, and in 14 the patients were well from two to four years after treatment. It is interesting to note that in 10 of these cases the sarcoma was spindle-celled, and in 10 round-celled. Since the publication of this paper the number of successful cases in the hands of other men has considerably increased.

I believe that with the observance of proper aseptic precautions the risks are *nil*. Including early experimental cases of inoperable carcinoma, I have now used the toxins in 230 cases, with but two deaths, both of which occurred more than four years ago. One of the patients was so nearly moribund that the toxins, although given in very minute doses, should never have been used at all.

In estimating the percentage of cures, or rather, in

[1] THE JOURNAL, July, 1898.

estimating the value of the method by the percentage of cures, it is well to remember that the treatment is advised only in cases in which there is no hope of cure by operation, in other words in entirely hopeless ones. In a number of cases in which the only operation to be considered was amputation, the arm or leg has been saved for the patient by the use of the toxins. In my own series, in a very large number of cases treatment was given only after the disease had reached such an advanced stage that there was practically no hope of more than temporary improvement. The fact that even one case of inoperable sarcoma has been cured would seem entirely sufficient to offset the disappointment of a hundred failures. If instead of saving only 1 per cent. there is a probability of saving more than 12 per cent. of these otherwise hopeless ones, we certainly have sufficient encouragement to continue the method. It is but a short time since 12 per cent. of success after operation for cancer of the breast was regarded as a brilliant result. I believe a most promising field, and one that to the present time has been little developed, is the use of the toxins in small and safe doses directly after operation, as a prophylaxis against future recurrence.

DOSAGE IN CHLOROFORM ANESTHESIA.*

BY A. S. v. MANSFELDE, M.D.

ASHLAND, NEB.

By way of introduction, I quote from one of our honored confrères, a truism, which can not be too strongly emphasized:

"The greatest among us does not lower his dignity when he places the patient on the confines of death, safely holds him there, dead to pain and consciousness, whilst the surgeon wields his knife, and then restores him to life." (R. M. Stone.)

As we go along, it will become convincingly clear to you that "the greatest among us" should approach the responsibility of administering an anesthetic with fear and trembling; he will even insist that his knowledge is far from being comprehensive enough to grasp all the factors concerned in this grave undertaking. To him this is not simply a question of the cessation of respiration, or of the heart's action, or which shall first succumb. He will crave the need of a profound knowledge of what takes place, step by step, to the end of the operation, or the supervention of death. A correct interpretation of what transpires; a knowledge of the best means of preventing what can be avoided, and a reduction to the minimum of danger of what can not be prevented or foreseen, are desiderata of the highest importance.

Anesthesia simply means a stage in the administration of the agent employed, lying on the borderland of death, and so close to it that the slightest mistake on the part of the anesthetist will land his charge on the shores whence no traveler ever returns. Such dangerous navigation certainly requires a skill which no other work demands. No one should give, nor attempt to administer, an anesthetic, who has not acquired the skill by the most careful study of the means employed, their mode of action, their dangers, their avoidance, if possible, and their prompt removal if they occur. He should also possess a familiarity with all the phases of the art, by a most painstaking apprenticeship; in other words, the anesthetist should be a specialist of the highest attainments which scientific medicine can confer.

Does the knowledge of a hospital nurse, a first year's student, or even of a young interne suffice to meet these just demands? I incline to the opinion of a recent writer on anesthesia, that there are those who know "what is what" in all branches of human undertaking and, in consequence, they make a brilliant success of their special work, from a Lawson Tait who, in his marvelous success, exultingly proclaims: "I cut anything except the arch of the aorta," to the man who successfully administers even such an anesthetic mixture as that of Schleich. But we are not all geniuses, and to jump from them to servants and first-year students for our anesthetists, if not ridiculous, comes dangerously near deserving the lamented Tait's criticism: "The whole thing is discreditable to our profession and absolutely subservive of any claim it may make as a science." A physician who is to be operated on would take a rather critical look at the person who is to narcotize him, and would most emphatically object to the species I have mentioned. Is not the public entitled to the same safe-guards?

However diversified the opinions as to the relative value and safety of the two great anesthetics, chloroform and ether, one point seems quite observable, the partisan spirit, inimical to scientific approach, which has animated the pros and cons of this great question. Here we will lay aside all prejudices by the simple but effective expedient of barring all comparisons. We are to discuss chloroform anesthesia, and in a still narrower limit the means by which exact dosage may be reached, and the possible benefit to be derived therefrom. Permit me, however, to say that I have taken chloroform to full narcosis twice in one day, three times in one week, and once later on, to such an extent that I was fully saturated with the agent, and in consequence thoroughly poisoned by it; that I have given it several times to those most dear to me in a practice of thirty-two years, have administered it, or had it used for me—in the last half of my professional career almost exclusively by my wife—innumerable times under all phases of surgical work, in all conditions and at all ages of life, with the exception of operations on the eye, ear, nose and throat, and I am still a partisan to chloroform. You will allow that I am cognizant of statistics, which make the danger of chloroform anesthesia 1 death to every 1500 inhalations, also that chloroform is supposed to be five times more dangerous than ether; it certainly is that many times more efficacious as an anesthetic. I am also acquainted with Tallyrand's witty saying: *Messieurs La statistique c'est le mensonge en chiffres,* interpreted as meaning that statistics are a jugglery of figures. To this end I may mention that deaths during ether narcosis occur less often than during chloroform narcosis, but bad consequences, often ending in death, are more frequent after ether narcosis. These deaths should be enumerated in statistics of both agents. Thus conditioned, the statistics of Gurlt, which are overwhelmingly against chloroform, will appear as follows: 11,669 ether administrations with 2 deaths and 8 subsequently, but clearly referable to the narcotic, give 1 death in 1167 administrations; and in 33,083 chloroform narcoses with 16 deaths during administration and 2 afterward, but attributable to it, we have 1 death in 2647 narcoses—half as many as with ether. But this is not all. Very many patients are constantly turned over to the tender mercy of the supposed greater poison, chloroform, because of the known danger of attempting ether narcosis in them. If all these were also subjected to ether inhalation, the

*A Lecture delivered, by invitation, to the Faculty and Students of the Omaha Medical College, and by request repeated before the Omaha Medical Society, Dec. 7 and 12, 1899.

death-rate would increase still more against ether. Besides all this, my partisanship does not allow me to believe that ether ever induced narcosis, unless asphyxia entered as a factor in its production—a weapon rather dangerous to use in most instances. To me there seems not much difference in the method of doing away with the English king's children, and the killing produced by ether inhalations. In justice to yourselves, this divergence was indulged in that you may be in full possession of all factors, to permit you to form such conclusions as my subsequent statements may warrant.

I will ask you to review with me a few physiologic data for the better understanding of our theme. It is well to bear in mind one life manifestation of the heart, i. e., its motion and the means by which this is accomplished. We have an undoubted excitability of the muscle-fibers composing the heart, independent of all innervation, a contractility inherent in all protoplasm, the sarcous substance of muscle-fibers not excepted. The fetal heart in an embryo three months old shows no sign of nerves, and yet it contracts rythmically even then. Plants are excitable, and yet they have no nerves. It is a very easy matter to put a young plant of the acacia family to sleep with chloroform, and it is perhaps familiar to all how readily the sensitive plant, Mimosa pudica, loses all irritability under the vapor of chloroform. The motility of the heart is influenced in the first place by impediment to food-supply, or the reverse of this, as furnished by the coronary arteries, to the substance of the organ, owing to vasomotor influences on these vessels, as well as to the quantity and quality of the blood furnished to them from the general blood-stream, also to the condition of the blood-vessels themselves, and the fibers composing the heart-muscle. Further, we have to take into account the regulating apparatus furnished by the ganglia and their nerves situated in the substance of the heart itself, and which are regarded as the automatic motive centers of the organ; they excite the cardiac movements, and maintain their rhythm. To these must be added the inhibitory nerve apparatus, which acts as a check to the movements of the heart, and is supplied by branches of the vagus and other nerves. Finally the accelerators, which may be likened to spurs stimulating the flagging heart to quicker action. Both the latter have their centers in the brain, and in their functioning are subject to the same laws and conditions which govern other organs, and furnish a third and very prominent part of the heart's motion. Besides all these, it is necessary not to lose sight of the causes which at any time influence the quantity and quality of the blood-stream; this includes the vast blood-vessel system, its anatomic and physiologic anomalies, and the resulting changes in form and function.

A similar elaborate and complex mechanism is presented, by the lungs, which, as the first receptacle of the anesthetic, are surely entitled to as much consideration as the heart, which receives from them the narcotic, and conveys it to all parts of the body. I will, however, mention only the physical points involved, as important to our subject, those pertaining to the capacity of the lungs for air, which in the average man is said to compass 5300 c.c. This quantity of air is divided into the following volumes, which may be in the lungs at the same time:

1. Complemental air, i. e., the air that may be inspired additional to an ordinary inspiration—1600 c.c.

2. Breathing or tidal air, that inspired and expired with each ordinary breath.

3. Reserve air, that which may be expired after an ordinary expiration—500 c.c.

4. Residual air, that which can not be expelled from the lungs by a most forcible expiration—1600 c.c. This is composed of two, almost equal, portions: *a*, the collapse air, which escapes from the lungs when the chest is freely opened, and *b*, the minimal air which remains in the lungs after the thorax is opened.

The breathing or vital capacity is the amount of air which is forced from the lungs after the deepest possible inspiration; it is the sum of the reserve, tidal and complemental air, 1600+500+1600 c.c., or 3700 c.c.

The stationary air is the sum of the reserve and residual air, 1600+1600 c.c., or 3200 c.c., and it is so named because under ordinary circumstances these two volumes of air remain constantly in the lungs.

If now it is assumed that in ordinary breathing, 500 c.c. of air are inhaled, and that 330 c.c. remain and displace the same amount of vitiated air, then the amount of renewal must be the ratio between the air in the lungs *before the inspiration*, i. e., the reserve and residual air (1600+1600 c.c.), 3200 c.c. and the fresh air, 330 c.c. remaining in the lung after each expiration, 330/3200=0.103 per cent. This has been termed the coefficient of respiration, and in the case given shows that only about one-tenth of the air in the lungs is changed with each breath[1].

What can, and really does happen on the operating-table? Normally, the average patient breathes twenty times a minute and inhales during that period twenty times 500 c.c., or 10,000 c.c., i. e., ten liters. However, external or subjective conditions, or both, may contribute to lessen the amount of tidal air, such as fear and hemorrhage, or the amount may be increased to the consumption of all the complemental air, making the amount inspired 2000 instead of 500 c.c., or four times as great! And this is readily accomplished by the anesthetist, by urging the patient to breathe deeply, or by forcibly compressing the thorax, or by the violent efforts of the patient himself, when excited or irritated by too strong an initial dose of the anesthetic. It will not need much urging on my part to convince you that the dose of so strong an agent as chloroform can not be quadrupled without the greatest danger to the recipient, especially if you bear in mind the fact that from 30 to 40 minims of chloroform in the blood of a man of average weight proves a fatal dose. In this connection, and for the sake of completeness, it may be well to mention the A. C. E. mixture, those of chloroform and ether and the Schleich mixture. All aim toward greater safety by meeting physiologic and chemical requirements; and toward accomplishing this by the greater quantities of one or the other ingredient of the mixture, presuming that the larger amounts will furnish the larger quantities of vapor, as demanded. This much-to-be-desired action, however, is only a happy dream. The boiling point of these agents is very far apart: for ether it is 98.5 F.; for benzin, 122-140 F.; for chloroform, 140-142 F., and for alcohol, 172 F. Thus a gram of ether thrown on an Esmarch mask will evaporate in approximately one minute; the same amount of chloroform in 1½ and a gram of alcohol in twelve minutes. Ether, of the specific gravity of 0.72, and chloroform of the specific gravity of 1.497 will form nearly one volume of chloroform to two of ether, and be of equal weight (66 c.c. of chloroform = 137.2 c.c. of ether). Edgar

[1] Gage, Simon H.: Reference Handbook of Medical Sciences, vol. iv, p. 208.

B. Truman, after showing that the diffusion of ether vapor, to that of chloroform, is as 100 to 78.8, found that by a gentle heat—between 98 and 104 F.—of equal weights of ether and chloroform, a distillation of 100 volumes of ether, to .953 of chloroform takes place in a little less than half the amount of the mixture and in the residue of a little more than half the amount of the mixture, a distillation of 100 volumes of ether to 75 (!) volumes of chloroform ensues. He comes to this result: "These figures show us the inadvisability of using the mixture of ether and chloroform. To give an inhalation, which may vary between 100 of ether and .9 per cent. of chloroform, and 100 of ether to 75 of chloroform at the ending of an inhalation is clearly a most dangerous proceeding." Besides this, these are all poisons of the same kind, and their admixture can simply serve as diluents of the weaker ones, to the more poisonous one, when being served out on towel or inhaler. But from that moment the anesthetist is utterly at sea regarding the quantities of one or the other of the ingredients he may be administering to the patient at any given time. The object of these mixtures is certainly praiseworthy, but the goal will not be reached until the ingredients are thoroughly combined in their gaseous form and reach the patient's blood in their ideal proportions. In the meantime it may be well to study the action of the gases of benzin and alcohol on the patient, separately, and learn their individual behavior before we mix them up with those of ether and chloroform. Indeed, Dr. Charles Bell Taylor, in the London *Lancet*, expresses himself as being convinced that, if the A. C. E. mixture is nebulized in a globe-inhaler, such as Oppenheimer's, or if nitrous oxid is used as the nebulizing agent of ether alone, one will get an ideal anesthetic. And in his masterful work on Operative Gynecology, Howard A. Kelly writes: "The anesthetic of the future will certainly be given in an atmosphere definitely diluted." Little he dreamed how soon actual practice would make good his assertion.

In regard to the dosage, i. e., the amount to be inhaled in a given time, and the degree of dilution with air when inhaled, the most remarkable differences exist, and many statements are so vague that it is almost impossible to comprehend them. Lord Lister comes to the conclusion that at a temperature of 70 F. the patient would not inhale more than 4.5 per cent. of the anesthetic, even when chloroform—3jss—is poured on a towel. Yet Robert Kirk[2] finds that an atmosphere of 5 per cent. is one of overwhelming power, that he can not bring his nose and mouth near it, and that it will kill the strongest rat or mouse in from ten to fifteen seconds. H. Kionka,[3] in his experiments to determine the quantity of chloroform or ether necessary to produce narcosis, found that anesthesia could be obtained with from 0.15 to 1.3 per cent. of chloroform, and from 2.1 to 7.9 per cent. of ether, varying according to the species of animal. A. E. Sanburn shows[4] that chloroform—3ss—poured on lint, may give off at the earliest inspiration an atmosphere containing more than 9 per cent. of vapor; a percentage known to be dangerous. And then we are surprised that an overdose will kill! It can not be too strongly urged that a correct knowledge of the percentage of chloroform, or its vapor, in a given amount of air to be inhaled and the time consumed for such inhalation, is the basis of all safe anesthetic efforts. It should be remembered that .5 c.c. of chloroform will expand into almost exactly 150 c.c. of chloroform vapor, that such an amount of vapor, added to 1000 c.c. or one liter of air, will give a percentage of 13 volume per cent. of chloroform vapor. It is a well-known fact, as proved by the experiments of Paul Bert and others, that air containing one volume per cent. of chloroform vapor, or about four drops of the anesthetic to the liter of air—1.06 U. S. quarts—can be administered for a long time, even for hours, without producing a decided anesthetic effect, but when a 1.5 per cent. chloroform vapor is used, or six drops of chloroform per liter of air, then narcosis will be initiated, and after an increase of, seldom beyond a 2.5 volume per cent. of chloroform vapor, or ten drops of chloroform per liter of air, a perfect anesthesia will be reached, which can be maintained for hours, with the minimum quantity of chloroform, i. e., 1.5 volume per cent. of the vapor or from 3viii to 3ix of chloroform for the first hour. Professor Geppert uses about 12 1-6 c.c. of chloroform, and 6.5 c.c. of ether during the first ten minutes of the administration, when full narcosis is usually reached. The following table will show the amounts of each for the ten minutes.

In	1st minute 1.5	of scale represents 0.5	chloroform 0.25	ether.
2d	1.5	1.0	0.5	
3d	1.5	1.0	0.5	
4th	1.75	1.166	.583	
5th	1.75	1.166	.583	
6th	2.	1.333	.666	
7th	2.	1.333	.666	
8th	2.25	1.5	.75	
9th	2.25	1.5	.75	
10th	2.25	1.666	.833	

For ready reference I append another table containing the volume per cent. of chloroform vapor from .5 volume per cent. to 15 volume per cent., and the amount of chloroform vapor contained in each, both approximately given. The table is given chiefly to emphasize the small amount of chloroform which is necessary to produce anesthesia.

Air + 0.02 c.c.	or 1.15 drops	or 5.8 c.c.	= .5	or .25 + 29.
0.04	2.3	11.5	1.	.12 + 14.
0.06	3.4	17.3	1.5	7 6 + 8.8
0.08	4.6	23.	2.	5.5 + 6.3
0.1	5.7	28.8	2.5	4.2 + 4.8
0.12	6.9	34.5	3.	3.3 + 3.8
0.14	8.	40.3	3.5	2.7 + 3.1
0.16	9 2	46	4.	2.2 + 2.5
0.2	11.5	57.5	5.	1.6 + 1.8
0 24	13.8	69.	6.	1.2 +
0.28	16.	80.5	7.	0.9 +
0.32	18.3	92.	8.	0.6 +
0.36	20.6	103.5	9.	0.4 +
0.40	22.9	115.	10.	0.3 +
0.44	25 2	126.5	11.	0.2 +
0.48	27.5	138.	12.	0.1 +
0 50	30.	150.	13.	0.0 +
0.60	35.	180.	15.	0.0 +

One liter, or 1000 c.c. of — Chloroform — Chloroform vapor — Vol. per cent. of chloroform vapor and air — One liter of a 13 vol. per cent. of chloroform air — Liters of air — One liter of a 15 vol. per cent. chloroform air.

There is this difference, however, between the methods of Paul Bert, as modified by Dreser and others, and that of Professor Geppert. In the former, Paul Bert's, a highly diluted chloroform vapor air is furnished, necessitating a large quantity of the mixture and a close fitting mask, so that no additional air can be inhaled, whilst, in Professor Geppert's method, a highly concentrated mixture, but of precise proportion of chloroform and air, is furnished, the dilution being accomplished by the free breathing of air by the patient. In the former case a precisely proportioned chloroform vapor air is furnished to be breathed; in the latter instance, a uniformly proportioned mixture (vapor air) is measured out for each minute of inhalation, to be lessened or increased in quantity as the needs of the case may demand, and this uniformly measured quantity is diluted on entering the respiratory apparatus, in the ratio of the number of respirations per minute, and their air-consuming quality, i. e., their depth. It is safe to assume that from 16 to 24 respirations per minute will cover the extremes—one respiration to every four beats of the pulse—and that 250 c.c. (15 cu. in.)

[2] British Med. Jour., Jan. 12, 1895.
[3] Archiv. f. Klin. Chir. [4] British Med. Jour. Dec. 15, 1895.

to 325 c.c. (20 cu. in.) of air per respiration is inhaled, setting a limit to the amount of air inhaled—from four to seven liters a minute. This amount of air therefore, forms the basis of dilution of the anesthetic, in whatever manner it is presented to the air-passage. It is, therefore, not altogether a question of the time allowed to elapse during which the anesthetic, drop by drop, is allowed to fall on the mask, though of very great importance in the consideration of the total quantity used in a given time, but of equal importance is the attention given to the percentage of dilution with air in which these drops reach the air-passages. To my mind the ideal drop method is practiced as follows: The chloroform is allowed to drop on an Esmarch mask, as modified by me, and, combining simplicity, cleanliness, and safety; at first, at greater intervals, with the mask some distance from the patient's face; this is brought down to the patient's face very gradually, with some reassuring remarks by the anesthetist; at the end of the second minute the mask will have reached the face and the chloroform will be dropped, one drop a second, until full narcosis is secured; and afterward, as the more painful measures end, one drop every three or four seconds will suffice to maintain perfect insensibility and immobility. If sutures are to be used, or other more painful finishing touches are needed, recourse to the one drop a second measure may be had for a short time, and finally the anesthetic should be removed gradually, exactly as it was commenced. Its sudden removal in the beginning of the narcosis is especially to be eschewed, as also at the close. It is at these periods when the reflexes are present, but may be deranged, that the danger from neuroparalysis is greatest, and the respiration as well as the circulation requires to be watched with the greatest care. It is at these periods, also, that the interruption of the narcotic is followed by a sudden rise of the blood-pressure, which becomes dangerous in the ratio of the lowness of the pressure, preceding the rise, to the weakness of the heart. Death from cerebral apoplexy, in old patients, has taken place at these critical moments. Again, handling the patient roughly, or the accidental display of instruments in the beginning, or of bloody towels and wrappings at the ending of the narcosis has produced fainting, a condition at no time devoid of danger, but especially hazardous during anesthesia. The drop method, employed as I have just described, and, as has been practiced by me for many years, leaves the least to be feared for the safety of the patient.

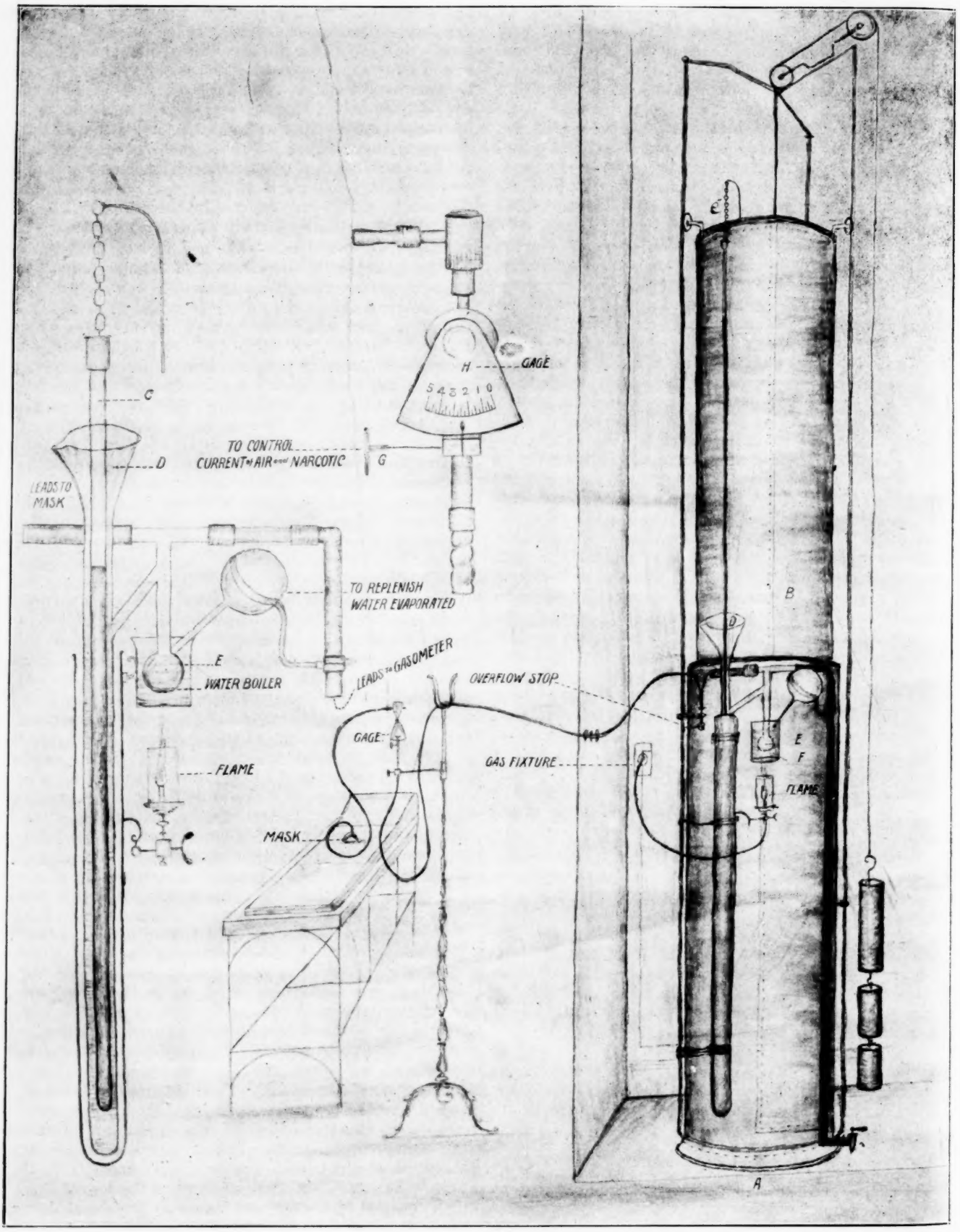
To form a correct judgment of the safety or danger of the anesthesia in any given case, it is necessary to fully understand the pathologic changes which may be of importance in the course of the narcosis. The special dangers of the intended operation are of secondary importance. The surgeon should, including these factors, form a prognosis of the narcosis, not per se but in its relation to the whole case. The more carefully the existing inferior vitality of the patient, the injury by the operation, and the poisonousness of the anesthetic used are considered, not each one for itself, but each in relation to the other two, the safer will be the prognosis and the less often will unforeseen and disagreeable surprises occur. The scheme of all the existing conditions will appear as shown here.

VITALITY OF PATIENT.			
Inroads on Vitality by:			
Pathological conditions. .	Operation.	Narcotic.	O. Witzel.

When the pathologic conditions plus the operation equal the vitality, then it will be understood that the addition to the duo of the anesthetic will make a sorry trio, and the surgeon will have none of it, nor will the anesthetist, for both will very likely meet with disaster. An operation under such circumstances is unjustifiable, unless demanded by humanitarian interests. Again, if the three—disease, or injury, the operation and the anesthetic—equal the vitality, then the interference should be made only for the purpose of giving the patient a chance, and as little injury should be inflicted and as little of the narcotic used as is compatible with the best interests of the patient. Finally, if the vitality greatly counterbalances the trio, then the case should end favorably, unless the pathologic conditions are undervalued, or misunderstood; the operator endangers the case by mistaken measures, or the anesthetist fails to steer free from all difficulties possible to avoid.

To grasp the action of chloroform in its entirety it is very necessary to understand, once for all, that its influence is not exerted on heart or lungs exclusively, but being the organs more fully and directly exposed to the agent, they are likely to show its influence more vividly to the observer. This does not take into account the reflexes, and very often deleterious influence exerted through the Schneiderian membrane and the mucous membrane of the larynx by the trigeminus and vagus. The fact remains that, little by little, all the body, i. e., its minutest parts, is brought under the paralyzing effect of the anesthetic. This includes the fibers of the heart, the cells of the mucous membrane, and the tissues composing the lungs, the cells of the nerves and their centers, the fibers of the muscles, and the cells of the blood, until, one by one, they go to sleep temporarily or forever. This process takes place first in the organs of animal function, and finally in those of the vegetative functions. This happy sequence is what makes chloroform useful; a reverse process would invariably kill before anesthesia is reached. When vapor of any of the anesthetics, in whatever concentration, finds its way into the blood-stream, it tends to spasmic contraction of all cellular elements of the tissues touched or pervaded; the stronger the concentration, the greater the spasm and the longer the time of its existence. During this period the whole of the lumen of all blood-vessels is narrowed and a higher blood-pressure is recorded. The whole system seems to make an effort to resist the inroads of the poison, and yet during the attempt of exclusion, another and more important action of the narcotic commences; the vapor penetrates into the tissues of the heart and its fibers, into the muscle layer of the blood-vessels and their fibers, into the elastic tissue of these and of the bronchial tree, affecting all alike; they become relaxed to the extent of "falling to pieces." This giving way will necessarily take place first where the vapor appears first and is most concentrated and exerts its strongest influence, i. e., in the heart; the organ succumbs to the blood forced into it by the contracted blood-vessels and dilates, often with amazing and deadly suddenness. This dilatation is followed by the same maneuver in the blood-vessels and capillaries, and in their giving way the blood is emptied into them, and the pressure, high till now, rapidly becomes lower and lower, the typical low pressure of chloroform anesthesia, and to some extent of all anesthetics. The heart, overfilled to dilatation, empties itself, and its walls become flabby. This is the moment of the lowest blood pressure, and of the greatest danger. The heart, however, continues to make small spasmodic attempts at

contraction, which attain, only after a time, the dignity of rhythmic contraction, though sometimes this state is never regained; then the patient succumbs in primary syncope, and the total collapse of acute chloroform poisoning takes place, which Sajous thus describes: "The appearance of a person in a dead faint, or just after a severe accident, is no more than a shade of that which obtains in chloroform collapse. . . . The light seems to fade from the eyes, as does the color from the cheeks and lips. . . . The eyelids fall open, the eyeballs



are fixed, in the upward position, with pupils fully dilated, as under extreme atropinism. At the same time the cornea becomes glazed and sticky, giving an appearance which, once seen, is never forgotten. And sudden and complete blanching of the face takes place, leaving it of a ghastly, grey hue." But, when from any cause, disease of the lungs, disease of the respiratory nerve-center in the medulla, by the use of an exceedingly concentrated vapor, or a too rapid inhalation of such vapor, the primary spasm in the lungs does not quickly dissolve into the relaxation, already described as occuring elsewhere in the body; then asphyxia must necessarily ensue, and if not quickly relieved, death, from stoppage of the respiration, will be recorded. This is correct if it is not forgotten that the spasms of the heart, and the rest of the circulatory apparatus, contributed largely to bring about and magnify the respiratory disturbance.

One more dangerous action of an anesthetic, especially of chloroform, I must emphasize. Our patient has happily overcome the primary spasm of both circulatory and respiratory organs, and the resulting relaxation of them has been safely adjusted by a happy compensation; or all of these dangers have been avoided—and it can be done in most cases by such an administration of the narcotic, that a restlessly sleeping child will not be disturbed by it in the least; neither coughing, gasping, choking nor struggling will appear, for all these are not only signs of an incorrect administration, but really danger-signals, to be carefully heeded—and yet, little by little the patient shows signs of impending danger and death. What is happening? The reflexes, the things that have given us so much annoyance, at first are abolished. The anesthetist, if he is thoroughly competent, steps in to take their place; he knows every sign and its interpretation, and all is well. But, if the calm, disturbed only by the operator, is not rightly interpreted, and the administrator allows himself to be infected by it, he will continue the anesthetic, little by little, until the nerves become insensible and refuse to convey impressions; then the cerebrum stops recording, consciousness is abolished, the spinal cord fails and motion and feeling are things of the past; then the medulla oblongata is invaded and the centers of circulation and respiration are lulled to rest; and finally the very ganglia of the heart substance cease their function. Slowly, step by step, the poison has overcome all the parts of the body, the patient dies from a poisonous dose, accumulatively administered. Thus we are brought face to face with the fact that chloroform or any other narcotic is dangerous to the recipient, be the method what it pleases—and all surgeons anxiously await the coming of a new agent, or of a new method for the administration of the old ones. So far the hope for better things has not been realized. To obtain the full effect of the anesthetic, it is quite necessary that the ingredients be in the form of a vapor, to be inhaled by the patient in exactly measured quantities, in a given time, and diluted to a known strength, with air. This great object, Prof. J. Geppert claims to have attained in the construction of the apparatus here shown.

It will be observed that this apparatus consists of a gasometer (*a*) of known capacity, to the upper chamber (*b*) of which a glass rod (*c*) is attached, which, with the falling of the chamber, as the air escapes from it, drops into a glass tube (*d*) containing the anesthetic. The rod forces the narcotic into a bulb (*e*), which is surrounded by water (*f*) somewhere near, but below, the boiling point. Thus the anesthetic in Geppert's use—two volumes of chloroform and one of ether or, by weight, 300 grams of chloroform to 70 grams of ether—is gradually forced into the bulb and vaporized, and escapes in known proportions of .4 to .5 c.c. of chloroform and half that quantity of ether to the liter of air, from the larger apparatus, and .6 c.c. of chloroform and .3 c.c. of ether to the liter of air from the smaller apparatus. These definite amounts of air and narcotics may always be measured in exact proportions, as the administrator may desire, by the opening of the faucet (*g*) near the gauge (*h*), which indicates the exact amount of the narcotic evaporated for each minute; so that the patient may inhale, at the commencement of the administration, bare traces of the narcotics, by the admission of great quantities of air from the room, until very gradually, however, he uses up from 2½ to 3 volumes of the compound vapor to every 97½ to 97 volumes of air, a percentage sufficing in most cases for a complete narcosis; this may be maintained for a shorter or longer time with a 1.5 volume per cent. of vaporized air, to the full satisfaction of the operator, and, what is more important, to the greatest attainable safety of the patient during and after the anesthesia.

To make the matter still more clear I will repeat the amounts of the narcotics needed in cubic centimeters. The narcosis will be initiated, as already stated, which can not be done too often or too emphatically, *in the most gradual manner,* until a strength of the vaporized air is reached which contains for the minute's time 1 2/3 c.c. of chloroform and 5/6 c.c. of ether, to 2 c.c. of chloroform and 1 c.c. of ether. However, the first amount given is seldom exceeded to attain a complete narcosis; and is reached in about eight to ten minutes. After the use of this quantity of this mixture for a few minutes, when the most severe surgical measures, causing pain and shock, will have been initiated, or concluded, the anesthetist in most cases will be able to return to the dose which, in most animals and also man, will initiate and maintain anesthesia: 1 c.c. of chloroform and .5 c.c. of ether per minute of inhalations.

In women this point may lie just a little below, and in men a little above these figures. Thus, instead of using the narcotics themselves, as in Krohne's perfected method, measuring the narcotics and the air at each inspiration of the patient, the narcotic, in the form of vapor and in exact proportion to the air, is furnished by the apparatus; and all the administrator has to do is to let the patient inhale them, increasing or lessening the quantity as the needs of the case may require, by simply opening or closing the faucet near the gauge, more or less. The apparatus is, so to speak, the scale on which the chloroform vapor is weighed. It exactly marks the dose which is conveyed by it, but it does not prevent the giving of too large a dose; neither does it exclude the need of the administrator's attention to the free and unobstructed breathing of the patient. In fact, it is not a substitute for knowledge and judgment, which the anesthetist himself should have and exercise.

Professor Geppert's method contains the elements of the ideal one of the future, the one which will be robbed of all the terrors of our past experience. I sincerely believe that the apparatus of Geppert is one of the many great inventions of the century.

I acknowledge with many thanks the assistance of Professor White, of the University of Nebraska, in the making of a temporary apparatus of Geppert, for exhibition; and that of Mrs. Jessie Laverty, for the reproduction, in large size, in crayon, of a picture of the apparatus, from the *Deutsche Med. Woch.*, No. 27.

USE OF ATROPIN SULPHATE AS A MEANS OF DIAGNOSIS IN CERTAIN PERSISTENT HEADACHES.*

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This paper deals with the determination of the etiology of some forms of persistent headaches. The method under consideration will save time, is coupled with a great degree of accuracy, and requires no special knowledge of refraction and its correction by glasses. It will enable us to exclude other conditions as causes of certain persistent headaches, and consists simply in the use of a solution of sulphate of atropin instilled into the eyes. The method should be employed to determine the cause of persistent headaches.

It is probable that the results obtained are due to the effect of the drug on the innervation of the ciliary muscle, for after the accommodative power returns the headaches often reappear.

Concerning the explanations of headaches we may say that, in general, they are produced by some kind of irritation of the filaments of the fifth nerve, which supplies the dura mater. The following hypothesis is offered to explain the manner in which the eye strain produces headaches. The ophthalmic or lenticular ganglion receives fibers from the fifth, the third and sympathetic nerves. The third nerve, through the medium of this ganglion, furnishes fibers to the ciliary muscle. It can be imagined that any excessive strain thrown on this muscle may, through a close anatomic connection with the fifth and sympathetic, induce, either directly or reflexly, an effect on the final terminations of the fifth in the dura mater, resulting in headache. Be that as it may, we know that some headaches, situated within the calvarium, are relieved, or even cured, by the use of glasses which remove the strain from the ciliary muscles; and, moreover, an analysis of a sufficient number of cases that have come for relief of headaches shows that the use of atropin sulphate, which paralyzes the ciliary muscle, dispels the headaches in just such cases. There is a striking and close analogy between the ultimate effects of glasses and of atropin sulphate on the ciliary muscle.

The headaches which are most frequently produced by ocular defects are situated, as to their frequency, in my observation, in the following regions: supraciliary, occipital, occipitofrontal, vertex and temporal.

When there is a general headache, that is, one equal in all parts of the head, it is due to some general depraved state of the system. I wish to allude to one kind of headache, namely, one situated on the *top of the head,* the vertex, having an area about the size of a silver dollar, circumscribed and associated with *tenderness of the scalp,* which is almost invariably due to eye strain, and often amenable to treatment by the use of glasses. The clavus hystericus belongs to this class.

Dizziness, when caused by eye strain, will often be relieved by paralysis of the ciliary muscle with atropin sulphate, and can be permanently abolished by glasses. The conclusion is that when a persistent headache, situated in any of these localities, disappears on atropin being used in the manner directed, the case is probably due to eye strain and can be remedied by properly adjusted glasses. To obtain the result, the atropin must be pushed to the complete suspension of accommodation. The directions for use are simple: A solution of ¼ gr. of sulphate of atropin to two drams of water, with directions to drop three drops in each eye, three times a day, until ten instillations have been made. When, on the return of the patient after the use of the atropin, we find that the headaches have disappeared, then a favorable prognosis for the dissipation of the headaches, through correcting lenses, can be given. There is one general caution to be observed, and that is the careful use of atropin in older persons. In increased ocular tension it should never be used.

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*Read before the Toledo Medical Club.

SOME OF THE ASPECTS OF RENAL INADEQUACY FROM A NEUROPATHIC STANDPOINT.

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(Continued from page 856.)

A. I., a male, farmer, aged 54, Irish, married, was admitted June 22, 1897. Nothing of the family history could be learned, except that the parents and several relatives had suffered from rheumatism, and very little of the life history of the patient could be obtained. He had worked eighteen years in a coal mine, was always intemperate, and during the last few years after a spree he would be confused, irritable, incoherent and violent, with a disposition to wander away from home. When admitted he was fairly well nourished, weighed 130 pounds, had a fair appetite but slept poorly. He had a shambling gait, there was partial paralysis of the right arm and hand, some paresis of the lower limbs and the patellar reflex was absent. He was depressed, his expression listless and vacant and memory poor. There was paraphasia, he could not tell his name, and he had difficulty in naming simple objects, although he knew their uses. He could not read nor write.

Uranalysis showed 1600 c. c. in twenty-four hours, sp. gr. 1025, yellow, translucent, reaction acid, uric acid .04 per cent., urea 1.09 per cent., indican 3 per cent., phosphates increased, sulphates normal, chlorids 8 per cent.; no albumin, peptone nor sugar. The microscopy showed nothing abnormal. He improved physically, gained in weight, the paresis improved, the knee-jerk returned, and the paraphasia almost completely disappeared. Some time afterward he complained of feeling bad, had a cough and some dyspnea, and a week later these symptoms returned, he had pain in the abdomen and vomiting after eating. Respiration was labored and he became feeble. He became obstinately constipated and there was a slight elevation of temperature. A few days later he became suddenly unconscious, his face was pale, there was marked twitching of the limbs, respiration was rapid and shallow, harsh and difficult, pulse slow, full, regular and of high tension. He perspired freely during the night and was better in the morning, but very restless. The urine was examined with the following results: amount in twenty-four hours, 500 c. c.; sp. gr. 1016; acid; yellow; translucent; uric acid, .06 per cent.; urea, 3 per cent.; phosphoric acid, .25 per cent.; indican, 2.5 per cent.; sulphates diminished; chlorids, 28 per cent. There were traces of peptone, but no albumin nor sugar. The microscopy showed renal epithelium and a few leucocytes. He improved rapidly and soon regained his former fair health. About two months afterward, while out walking, he fell suddenly, with a cry, and became unconscious. His face was cyanotic, pupils contracted to a pin-point size, the arms and legs twitched and jerked, both sides apparently equally affected. The respiration was slow and deep, pulse 90

and feeble. The surface of the body was covered with cold perspiration. After about twenty minutes he began to regain consciousness, vomited some undigested food and was soon able to walk to the house. During the next twenty-four hours he passed 300 c. c. of urine, sp. gr. 1016, acid, yellow, translucent, uric acid .09 per cent., urea 1.2 per cent., phosphoric acid .14 per cent., indican 2 per cent., sulphates 1 per cent., chlorids .6 per cent., no albumin nor sugar. The microscopy showed leucocytes and renal epithelium. At the present time this patient is in fair health, has a good appetite and sleeps well. He is rather stupid and indifferent, but answers ordinary questions fairly well, takes a moderate amount of exercise, but does not otherwise occupy himself. The following is the result of the last uranalysis: amount in twenty-four hours, 700 c. c.; sp. gr., 1020; acid; yellow; clear; uric acid, .03 per cent.; urea, 2 per cent.; phosphates and indican, normal; sulphates, 2 per cent.; chlorids, 12 per cent.; no albumin, peptone nor sugar. The microscopy shows cylindroids.

S. S. was admitted Aug. 6, 1895. He was born in Sweden, 78 years ago, was a widower, and a day laborer. Very little could be learned of his family history. The father died at 62 years of age, of "dysentery;" the mother at the age of 82, of "old age." One sister died of "dropsy" at 9 years of age; another sister was peculiar. The mother had been hemiplegic for some years before her death. There is no record of the early life of the patient. He suffered from "rheumatism" during adult life and for the past few years has been nervous and irritable. A short time before he was committed to the hospital, during a fit of despondency, he shot himself, with suicidal intent. The following is a record of his physical condition at the time he came into the hospital: temperature normal; pulse 60, full but intermittent; respiration fairly deep, rate 18; arteries atheromatous; depression in both supraclavicular regions; respiratory murmur roughened over both lungs, resonance increased. He had an umbilical hernia. The tongue was clean, digestion fairly good. There was some senile tremor of the tongue and limbs and inco-ordination. Uranalysis showed: sp. gr., 1023; urea, 2 per cent.; no albumin, sugar nor casts. He improved physically, became more cheerful, was quiet and well behaved, but steadily grew more demented. He was in bed for a month in the fall of 1896, complaining of pain in the body and limbs, and weakness. During this time there was retention of urine, which was decreased in amount, of low specific gravity, contained some leucocyte casts but no albumin. The phosphates and sulphates were normal, but the chlorids were decreased. There was no material change in his condition during the next year. He complained more or less of pain, from time to time suffered from retention of urine, was in and out of bed, feeble, but took a fair amount of nourishment and slept well. In the beginning of October, 1898, he grew more feeble and stupid, unable to help himself. There was incontinence of both urine and feces. In the latter part of the month he developed some congestion of the lungs, coughed and expectorated. The sputa contained streptococci and staphylococci, but no tubercle bacilli. Uranalysis showed 1175 c.c. in twenty-four hours; sp. gr. 1018; acid; urea 1.7 per cent., phosphoric acid .0001 per cent., sulphates 2 per cent., chlorids 7 per cent., no albumin nor sugar. Microscopy showed numerous leucocytes and fibrin bands. There developed some hypostatic pneumonia with dilatation of the right heart. This condition improved after a time and he was up and about the ward, but went to bed again early in the fall of 1898. He was very feeble, irritable, nervous, confused and suspicious all the time, but always much worse during the exacerbations of his physical disturbance. In December, 1898, he developed a left hemiplegia, the arm being first involved, then the leg and face. He complained of general pains, was very restless and constantly trying to get out of bed. At this time uranalysis showed the following: amount in twenty-four hours, 600 c.c.; sp. gr., 1015; urea, 2.8 per cent.; phosphoric acid, .2 per cent.; sulphates, 2 per cent.; chlorids, 34 per cent.; no sugar nor albumin. Microscopy revealed amorphous uric acid. He grew steadily weaker and died Jan. 12, 1899.

At the necropsy, there was some fluid in the subdural space, the membrane was smooth except at the vertex, where it was adherent to the skull and pia, and there was marked adhesion at the base. There was a chicken-fat clot in the anterior third of the left lateral sinus, and the others were filled with dark clots. There was 135 c.c. of cerebrospinal fluid; the thickness of the pia was increased and the surface of the convexity covered with opaque patches. The vessels contained fluid blood and some gas. The brain weighed 1485 grams; 3 cm. from the longitudinal fissure on the right side, the dura and pia were adherent to the precentral convolution, the point of adhesion having the appearance of an old scar 2 cm. in diameter. There were small points of adhesion over the postcentral convolution on the left side, 2 cm. from the longitudinal fissure. There was serous effusion over the whole convexity, most marked over the Rolandic area on the left side. There was a subcortical cyst involving all three occipital convolutions toward their external surface, on the right side, also marked atheroma of the arteries at the base, and the carotids were aneurysmally enlarged at their exit from the bone. There was atrophy of the cortex in the region of the operculum, so that the insula was partially uncovered on both sides. Aside from these external evidences of degeneration, there was no gross lesion of the brain substance, but well defined in the floor of the fourth ventricle the condition previously described as characteristic of death from uremia was evident: edema of the ependyma of the fourth ventricle, with intense injection of the vessels. The viscera in the chest and abdominal cavity showed marked evidence of degenerative change. The right kidney weighed 120 grams. There was a large cyst on the convexity, which contained 25 grams of urine. The capsule stripped fairly readily, the surface of the kidney was covered with small cyst scars. The left kidney weighed 132 grams; there was marked atrophy of kidney substance on the anterior surface exposing the pelvis. The capsule stripped fairly readily and the physical conditions were practically the same as in the other kidney. The degeneration in these kidneys was as nearly a pure atrophy, without increase of connective tissue, as I ever saw. The bladder was almost empty, its walls very much thickened, and it contained about a gram of sandy particles.

I record the following case not so much on account of the association between the condition of the urine and the symptoms manifested, but because it is typical of a class of cases very common with us. The mental symptoms are characteristic and quite similar to those manifested in cases of urinemia associated with chronic degenerative disease of the kidney among the sane, differing only in degree.

H. M. A., male, aged 45, Canadian, salesman, married but divorced, was admitted Sept. 26, 1898. The family history was negative. The parents married young, were healthy, and had eleven children, four of whom are dead,

the cause unknown. The patient was healthy as a child and showed no peculiarities of temper or disposition. Little information could be gained as to the history of his adult life, except that he drank to excess. There were some darkly-pigmented spots over each tibia, and some suspicious ulcers in the lumbar and sacral region. The ulcers healed rapidly under specific treatment. The genitalia were atrophied, but no scars could be detected. There was some ulceration along the posterior pillars of the pharynx. About two years ago he was "paralyzed." There was no history of this attack except that it came on suddenly, and the patient, on waking in the morning, found that he could not move his body or limbs. The paralysis gradually disappeared, but he was no longer able to do any work. About three months before admission he began to be emotional, irritable, confused, could not remember what was said to him, and was childish in conduct and conversation. He was in a city hospital one week before coming to St. Peter, and was said to have been violently maniacal during a part of that time. His examination on admission to this hospital disclosed the following conditions: height, 5 feet 7 inches; weight, 123 pounds, frame slender, nutrition impaired, flesh soft, skin inelastic; temperature, 98.6; pulse, 58, regular and of fair volume; respiratory rate 14. The relative heart dulness was increased downward and to the left, and a musical murmur, systolic in time, was heard in the second intercostal space on the left side near the sternum. The arteries were sclerosed. There was no evidence of disease in the lungs, and the appetite and digestion were not impaired. The muscles of the face and tongue were not affected, the pupils and the ocular reflexes normal, superficial reflexes present, knee-jerk exaggerated, co-ordination in the arms and legs poor. There was some disturbance of sensation, shown by hyperesthesia to heat and delayed recognition of cold.

Uranalysis showed 1575 c.c. in twenty-four hours, sp. gr. 1010, yellow, opaque, alkaline, urea 1.5 per cent., phosphoric acid .2 per cent., sulphates and chlorids increased, albumin 2 per cent., some peptone. Microscopy revealed numerous leucocytes. The patient was listless, careless and indifferent, unsteady in gait, suffered from incontinence of urine, but was constipated. His memory and mental reflexes were fairly active. He conversed freely and was quiet and agreeable. During the next two months he gained twenty-five pounds in weight, and was able to do light work about the sick room and ward. At times he complained of feeling ill and said his limbs ached. He could sleep during the day and said his left leg became numb when he sat long in one place. One morning, soon after, he was found unable to move his right arm or leg, was unable to speak, and his head was drawn to the left. The temperature was 103.4, pulse 92, full and regular, and respiration 24. He vomited some blood-stained mucus. His bowels were confined and there was retention of urine; 775 c. c. of dark yellow, alkaline urine was obtained by the catheter. The sp. gr. was 1024, urea 2.8 per cent., phosphoric acid .2 per cent., sulphates 2 per cent., chlorids 25 per cent. There was a trace of albumin, but no peptone nor sugar. Microscopy showed nothing abnormal. (The conditions producing the high temperature accounted for the increase of chlorids at this time.) The temperature remained close to 104 F. He would suddenly turn his head to the right and throw his arm to the right and backward. These movements continued for a quarter of an hour, being violent at first, but gradually decreasing to the point of complete relaxation. These convulsive movements were repeated at intervals of an hour, and were accompanied by incoherent muttering. He took a little milk, but swallowed with difficulty and had to be catheterized at intervals. On the third day of the attack, 1100 c.c. of urine was collected: sp. gr. 1022; acid; urea, 3 per cent.; phosphoric acid, .2 per cent.; sulphates, .2 per cent.; chlorids, 6 per cent.; a trace of albumin, but no sugar nor peptone. On the fourth day the temperature came down to 99.6 F., and he seemed much brighter and there was some slight return of motion, first in the leg and then in the fingers and forearm. He apparently heard when spoken to, but could not answer nor make any sound. He was restless, appeared uncomfortable, would pull at the bedclothing and attempt to grasp the bed-post. In these attempts his hand would fail to reach the object, on account of its being carried too far to the left and not far enough to reach the object. At the same time he would mutter incoherently to himself. He would reach out into space and would bring his hand to his lips and make movements as though eating and drinking. At times he would be apparently listening, and again would make gestures and sounds as though conversing with another. In another day he could repeat parts of a sentence, but there was paraphasia. Names of objects bothered him. When asked to name an object held before him, such as a pencil, key, watch, etc., he failed to find the word, but when asked what it was used for, he readily described its use and then named it. He had no difficulty in reading or writing. At night he was restless and wakeful. He was very much confused for a few days. In the morning he would give an account of how he had spent the night, saying he had walked a great distance, taken a ride on a boat and been shipwrecked. He imagined people were talking about him and at times did not know where he was. He thought he was in a different room or house and believed that he was frequently moved about. The paralysis gradually disappeared, he passed his urine voluntarily, conversed fairly intelligently, but was still restless at night. His appetite improved, he was soon able to be up and about, was cheerful and went to work again. Uranalysis showed 1600 c.c. in twenty-four hours, sp. gr. 1025, dark yellow, clear, acid, urea 2.2 per cent., phosphoric acid .15 per cent., sulphates 1 per cent., chlorids 20 per cent., no albumin, peptone nor sugar. Microscopy revealed leucocyte casts.

The following conclusions seem to me to be warranted by our study of the clinical aspects of renal inadequacy during the past five years, supplemented by the uranalysis and post-mortem verification of the deductions made.

Renal inadequacy as a temporary condition, not necessarily dependent on histologic changes in the kidney structure, is quite common, especially during adult life and after.

There is definite clinical evidence that in some people renal inadequacy is congenital and dependent on limited potentiality—usually nervous—in the individual affected.

The amount of the total solids in the urine, or the presence or absence of albumin or casts, furnishes no direct evidence of impending urinemia, but the relative proportion of the solid constituents to each other does furnish such evidence.

In my experience, when the quantity of urine is decreased below 1000 c.c., urea below 2 per cent., chlorids below 10 per cent., while the phosphoric acid is increased above .2 per cent, the sulphates above 1.5 per cent., urinemia is present or impending. The importance of the elimination of the chlorids is apparent when we re-

member the effect of sodium and potassium on the nervous system, and the reduction in the relative quantity eliminated is the most constant change in the constitution of the urine of uremic patients. The increase of phosphoric acid and sulphates is the result of the nervous disturbance caused by the uremia, rather than in any sense a factor in its causation, while the relative amount of urea is not so certain a test and often misleading in the chronic form of uremia. In the acute explosive form, with syncopal attacks or convulsive outbreaks, the marked reduction in the relative proportion of urea is quite constant. In other words, as would be expected from the pathology of the condition, urea is most apt to be diminished in parenchymatous nephritis.

The apparent contradictions in the tables given are explained by the presence of other disease conditions in the individual at the time, which materially modify the ordinary processes of metabolism.

The fact that the usual symptoms of urinemia may not be present in cases where profound degenerative changes in the kidney are found, post-mortem, is partially explained by the establishment of tolerance of the nervous system to the presence of the toxic substances in the blood, and further exemplified by the finding of one or more pyramids in each kidney, with the surrounding cortex in good working order.

The symptoms of chronic urinemia are most marked in cases of interstitial nephritis, and it is in this class of cases that the hemiplegias and partial paralyses, with mental disturbance, most frequently occur, while in parenchymatous nephritis the sudden uremic explosions with convulsions and stupor are most common, and in this class of cases, for obvious reasons, sudden death following renal congestion is most apt to occur. At the same time, the fact must be kept in mind that, as we rarely have a purely structural or parenchymatous change in any organ, cases of nephritis are apt to be of mixed form—especially those of alcoholic origin—and consequently the clinical picture furnished by each will run into the other and be present in varying degrees in the same case.

The hemiplegias and other paralyses due to uremia are to be distinguished from those due to cerebral hemorrhage, by the fact that all of the muscles are not involved, that the loss of power is seldom complete and that the degree to which different groups of muscles are affected will vary from day to day, also that the complete loss of power is quite temporary, although there may be a permanent paresis.

That simple interference, with metabolism and the resulting loss of vitality with impairment of the nutrition of the general organism, will not produce the conditions necessary to the development of urinemia is apparent in the history of the numerous disease processes which do interfere with nutrition and impair vitality; while the sudden appearance of the uremic storm in an individual apparently free from disease, makes it evident that there are other factors in the production of urinemia than those with which we are yet familiar. To my way of thinking the principal one of these is the nervous system and the influence it has on the activity of the kidney independently of its function as a filter. The analogy between the symptoms of shock and certain manifestations of uremia is suggestive, and so is the close resemblance between the symptoms of apoplexy due to cerebral hemorrhage and the same condition resulting from uremia. Then again, failure in the functional activity of the kidney is quite commonly manifested in those vegetative organs with which it is most intimately associated in its nervous supply, as represented in the familiar gastric crises and apparently causeless attacks of diarrhea associated with the progress of chronic interstitial nephritis. Again, pleural effusion, bronchopneumonia or pulmonary edema, with dilatation of the right heart, may be the only symptoms manifested during the illness of the patient, and the necropsy reveal extensive degenerative changes in the kidney. Now, the association of the kidney with those organs supplied by the pneumogastric and phrenic nerves is principally through the suprarenal gland, and, so far as my observation goes, this gland is always involved in the degenerative process affecting the kidney—the change being atrophic in chronic interstitial nephritis and cystic in the parenchymatous form. This gland is also quite commonly infected by the tubercle bacillus and the pus-forming bacteria, when there is a similar infection of the kidney. It is further worthy of note that when degenerative change in the kidney manifests itself through disease processes in the vegetative organs, the nervous system is practically never directly involved and such nervous symptoms as do develop are secondary to the visceral disease. The converse of this obtains where the urinemia affects the nervous system primarily and the pulmonary edema and cardiac failure only appear after the intoxication becomes so profound that dissolution is imminent.

While many of the conclusions offered in this paper are in a measure speculative, still they are all founded on clinical experience and pathologic study. They have suggested to me a reasonable explanation of some of the many obscure conditions met with in hospital and general practice, and furthermore, they are in line with current physiologic speculation concerning the probability that each vegetative organ has a secretion peculiar to itself, which not only affects its own functional activity but also the vitality of the organism as a whole.

SHOULDER-HUMERO-SCAPULA ARTICULATION.

SOME OF THE COMPLICATIONS AND SEQUELAE ATTENDING OR FOLLOWING REDUCIBLE OR IRREDUCIBLE DISLOCATIONS, WITH A BRIEF REVIEW OF THE VARIOUS MODERN OPERATIVE MEASURES NOW EMPLOYED FOR THEIR TREATMENT.

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(Continued from page 860.)

ARTHROTOMY OR REDUCTION.

When it is decided to be expedient or imperative to operate on an arm which resists reduction by ordinary methods, the question arises as to whether we will expose the articular head by a free incision, and remove it through the anatomic neck, or rather preserve and restore it by an arthrotomy. On this point surgeons are not in complete accord.

Resection is much the simpler procedure. The capsule is preserved and the attachments of the deep pronators are maintained, but the articulation is destroyed; an important anatomic structure is gone.

Arthrotomy and forcible reduction of the head usually entails an extensive mutilation and free hemorrhage. Sometimes all the muscular attachments to the outer head must be divided, and if the circumflex nerve has suffered damage, or if there be an osseous lesion, after the head is replaced it can not be retained. "Bloody reduction," says Knapp, "without resection is

not without serious results." He collected 12 cases; 3 deaths, with but 4 materially improved; while in 20 resections there were 4 deaths, and 16 fairly good results.

Delbet, while rather a partisan of arthrotomy, confesses that on the whole the ultimate functional results are better after resection.

In 37 cases of resection recorded by Lund, the result was good in 16, in 5 mediocre, in 2 bad, unknown in 6; 5 patients died as a result of the operation.

Resection of the humeral head should be followed by no mortality whatever. With those cases ending mortally, it is probable that resection was only resorted to when arthrotomy had failed, when retention was impossible and, as a forlorn hope, the articular head was sacrificed; not, however, until exsanguination was great and shock profound, and there had been extensive laceration of the tissues.

Tuffier believes that the functional results are much better after arthrotomy. He would, therefore, prefer arthrotomy as a primary endeavor, and then, if the exploratory incision revealed an osseous lesion, he would resect the head.

Schede insists that the effects on function are always very much better after operative reduction than after excision of the humeral head.

Delorme, in all old cases, resects the head. He records an example, after subspinous displacement, when this was followed by excellent shoulder action.

From the foregoing, and from a rational view of the subject, based on our knowledge of the character of structural disorganization present, in recent irreducible dislocations, it is evident that if sanguineous measures are decided on, an *exploratory* arthrotomy should be first undertaken; then, should we detect a fracture through the apophyses of the humerus or of its necks or through the glenoid fossa, as a second and final step it may be found necessary, as a complementary measure, to resect the head.

In old dislocations attended with painful ankylosis or disability, after organic changes have set in, when the muscles have wasted and the humeral head has undergone degenerative changes, arthrotomy with forced reduction should not be undertaken; but a simple and comparatively bloodless resection should, in every instance, have the preference.

ARTHROTOMY OR RESECTION IN HABITUAL OR PERSISTENT LUXATION.

The head of the humerus, once completely luxated, is liable for some time after reduction, on any sudden or vigorous movement, to again suffer displacement. In some, after reduction, it can not be retained in the position completely; the head tends to droop forward or outward; there is essentially a state of subluxation, and in various accentuated cases of this type, it has been sometimes denied that the head was ever reduced at all. These cases are sometimes a most painful and troublesome cause of expensive civil action for the surgeon. The deltoid has sustained violent over-tension, and slowly, if ever again, recovers its full tone; or perchance, the circumflex nerve is involved. Again, there are cases, happily very rare, in which, though reduction is easy, the weight of the arm is enough to drag the articular head completely out of the glenoid cavity.

Arthrotomy with excision of the head has served a most useful purpose in many cases of habitual or recurring shoulder luxation, although other methods are in vogue which appear, in the hands of some surgeons, to have been effective in overcoming the tendency to recurrence of luxation. A remarkable case of the above class is published by Platt, from Mr. Southam's service. The patient was an epileptic, 45 years old, whose shoulder had been dislocated about fifty times. Excision of the humeral head resulted in a very useful arm.

In those cases which have been treated by resection it is remarkable to note the extent of *restitutio ad integrum* by Nature's unaided efforts. Thus Chassier, Roux, Hutchinson notably, have published the results of their examinations of shoulders post-mortem, in which the humeral head has been resected from three months to twenty years. In all they have found stout bands of fibrous tissue firmly joining the end of the humerus to the scapula. Dr. Souchon makes an extended note on this important post-operative state of the parts.

TECHNIQUE: MODE OF OPERATIVE PROCEDURE: ILLUSTRATIVE CASES.

Lord Lister was the first who recommended and performed arthrotomy as an *en courant* procedure for fracture of the patella with extensive displacement of the fragments; and in 1887 he performed for the first time, arthrotomy for double shoulder dislocation. The dislocations were subcoracoid of eight weeks' standing, in a man of good muscular development. He commenced by making a vertical incision along the inner aspect of the deltoid. This brought him down on the tendon of the subscapularis muscle, which he divided with the external rotators, when traction was applied with pulleys and failed. Then all the internal rotators were severed and the pulleys again applied, when the head went into position. The result being very unsatisfactory, after two weeks the other point was similarly treated with the same results, the bone going into place at first efforts with the pulleys. Another similar case shortly after came under Lister's care for double dislocation of seven months' standing, in an epileptic. On free section of the rotators, with the aid of traction, the bone went readily into place. Six months later the other point was opened, and a resection of the head made. Both these cases yielded excellent results, and were presented before the Hunterian Society of London.

Lord Lister advises that in all old cases, the first step should be to expose the head and raise it well, and free it from any adhesions before traction is commenced, in order that the dangers may be obviated which arise from possible adhesions of the larger blood trunks with the head of the humerus. After this step, all the rotators should be divided and traction applied. This failing, we should excise the head.

Sir William MacCormick, assisted by Lord Lister, reduced the humeral head with great difficulty after arthrotomy, but suppuration followed, and later section through the anatomic head had to be done.

Cotterill replaced the heads of two dislocated humeri by section; one of the cases being of four and a half months' standing. All the muscular attachments to the outer head were divided and the capsule opened, when the glenoid cavity was found partly filled by fibrous material. The bone was, however, replaced but suppuration followed, though later the wound healed and some joint action followed. In the second case, six weeks old, on section it was found that the glenoid base was segmented by a fracture. The bone was replaced. In both of these cases there was paralysis of the limb before operation, which entirely disappeared and a fair degree of function was recovered.

Cotterill believes that the comparative value of this operation can not be yet determined.

Mayo Robson exposed the articular head and opened

the capsule. He found the glenoid cavity quite obliterated; he then closed the wound, leaving the head *in statu quo*. Some movement in the arm followed.

Watson Cheyne and Pearce Gould have restored the displaced head by arthrotomy with good ultimate functional results.

Mr. Edward Owen has treated three old irreducible cases, two women, by excision of the head. He made a clean vertical incision, exposed the head freely after dividing all its muscular attachments, and then excised it with a saw. Owen calls attention to the great danger to life from very violent traction in old dislocations. He regards anything past "eight weeks" an old dislocation, and beyond the time when forcible reduction could be safely undertaken. In his three cases useful joints were secured.

Lucas-Championniere declares that the relative value of arthrotomy and excision of the humeral head should not admit of controversy; but that the head should never be cleared away unless its replacement is impossible or it gives rise to painful conditions in its new situation. He even goes further and advises against operative procedures under any circumstances, unless the functional power of the limb is seriously compromised. He then narrates the case of a physician who had a dislocated shoulder which gave him so little trouble that he was unaware of its existence until his attention was called to the deformity by a confrère. Velpeau, under whose care he came, advised non-interference.

MODE OF INCISION. THE TRANS-SCAPULA-OSSEO-MUSCULAR FLAPS, ETC.

All our modern operative methods of dealing with irreducible shoulder dislocations entail a large open wound, that the deep parts be denuded and freely exposed.

What constitutes the greatest objection to the operative reduction of shoulder luxations is the extensive division of the soft parts, of the integral structures of the joint. Hemorrhage is free, but not difficult to control.

When the head is deeply locked, through a lacerated capsule, between or under contracted muscles, a large dissection must be made, and even then, so much traction and torsion on the humeral shaft are sometimes necessary that the parts are freely lacerated or contused; hence, their vital resistance being reduced, the tendency to infection and suppuration after arthrotomy is great.

Ollier noticed the uncertain position of the circumflex nerve, and the danger of wounding or dividing it when a section is made through the surgical neck; and Souchon observes that, in these cases, the care of the deltoid muscle and the nerve which animates it is an important point.

The convex incision has been quite generally discarded, because of the inevitable damage to the deltoid.

Diffenbach made a deep section through the pectoralis major, the latissimus dorsi, the two teres muscles and capsule.

In 1882 Poillon published a case in which he adopted this incision with good effect.

Reclus somewhat modified the procedure. He sent the bistoury in at about a centimeter below the summit of the acromian, the point directed horizontally over the head of the humerus. It was then pressed firmly inward between the anterior surface of the head and the under surface of the deltoid, dividing, in its course inward, all the fibrous structures and the capsule. This is essentially a revival of the "subcutaneous section" of Wisenhold.

In a subglenoid dislocation, hoping to the more easily reach and free the head, Volkmann made a vertical incision which failed to aid in reduction, and so wounded the axillary vein that it had to be ligated. By a similar incision, Kuster so lacerated the circumflex artery that it had to be ligated. He had suspected button-holing of the capsule, but when he cut down he found it entire though much thickened.

The coraco-humeral is now the incision generally preferred, as it entails less mutilation, is the safest, permits of the freest exploration, and ready exarticulation, and excision when this is desirable. The latest device for freely opening up the shoulder-joint is published by the celebrated Chicago surgeon, Prof. Nicholas Senn. It constitutes a radical departure from all former methods, although, of all the prodigious innovations contributed to surgical art and science by its originator, it is the most vulnerable; for, it would seem to be not only open to adverse criticism, but to positive condemnation. It is based on sound mechanical premises, but its range of destruction is great. Dr. Senn describes his open method as follows: "First an incision is commenced over the coracoid process and carried downward and outward in a gentle curve as far as the middle of the deltoid muscle, when it is continued in a similar curve upward and backward as far as the posterior border of the axillary space on the same level where it commenced; i. e., a point opposite the coracoid process. The semi-lunar flap is next reflected up as far as the base of the acromian process. Now the acromian process is detached with a saw, and turned down with the deltoid muscle attached. The capsule of the joint is now opened and freely explored. If the operation is for an irreducible luxation, the head of the bone can be detached, the cause of resistance sought for and removed, when reduction can be accomplished by direct or indirect means." He concludes by affirming that "when this trans-scapula section is done for irreducible dislocation, it involves no important tendons, muscles, vessels or nerves, and for this reason, good functional results may be confidently expected."

It is evident, though not so stated, that this means of opening the joint is intended for recent cases only, as in the old or recurrent habitual luxations, for obvious reasons, it would be of no possible value. But under any circumstances this section of a trans-scapular osseo-muscular flap must be serious in its consequences to the ulterior use of the limb. It is well known that the deltoid alone is capable of holding the humerus up and maintaining strength and action in the shoulder, when practically all the other muscular attachments are cut away.

An example of this, Professor Dennis recently demonstrated before the N. Y. County Medical Association, in a young man, from whom he had removed the head, both tuberosities and more than an inch of the humeral shaft; and yet, after recovery, nearly the full strength and movement in the joint were maintained by the undivided deltoid.

In the cadaver, if we make a clean cut across the three segments of the deltoid, and allow the arm to hang over the table, the head falls downward and outward, and we have a subluxation. In the Senn operation, the wide breach in this muscle must close in, and the ends unite by scar tissue, a substance which we know is always sure to stretch when put on a strain; when the head of the bone must inevitably topple downward or forward, pressing on the tubular structures, and in time possibly undergoing complete displacement.

Shafts of bones divided by saw cuts, we know, do not always unite well. If the cleft here through the root of the acromian process should fail to fuse well by osseous bond, the effects on the shoulder must be disastrous. Possibly the theoretic objections to the trans-scapular incision may not be realized in practice; though they must remain until controverted by clinical demonstration, which is yet impossible, as recent surgical literature records no cases so treated.

PERSISTENT DISLOCATION, REDUCIBLE BUT NOT RETAINABLE.

Besides those irreducible cases which are comparatively numerous, we have others, though very unusual, in which, either from damage to the muscles or the nerve cords, although reduction is easy the arm sinks downward and hangs limp by the side of the body, with little power in it.

Some years ago Prof. F. S. Dennis presented such a case before the N. Y. Academy of Medicine, in which amputation was seriously contemplated. Several such abound in surgical literature, as serious complications following luxation. Ricard has recorded two which were treated, it appears, with some advantage, by arthrotomy and reefing the capsule, i. e., by replacing the humeral head and tucking up the folds of the elongated capsule. However, it seems inconceivable how such a procedure can have any permanent effects, because the elongation of the capsule is the consequence and not the cause.

One such case came under my own care in a boy 7 years old. The dislocation was ten months old, and was complete. There was marked atrophy of the shoulder muscles, but sensation was intact, and there was fairly free motion in the forearm and hand. It was my impression that the capsule had been ruptured or that the head had slipped through it. But on dissection it was found entire, though very much thinned. The long head of the biceps was in position, and nothing was found on arthrotomy to account for the condition. The slack of the capsule was cut away and then closed. With the arm reduced and firmly fixed, a gypsum dressing was applied. Union was primary. For a time it was thought that reposition was permanent, but at the end of three months the dislocation had again entirely recurred.

In this class, wherein diverse etiologic factors come into play, different modes of therapeutic procedure must be utilized. Authors are not in accord on causation, therefore we note that Cramer, Kuster, Volkman, and Voght, regarding enlargement of the humeral head as a mechanical impediment to retention, excise it. Burrell, Ricard, and others noted enlargement, thickening, and elongation of the capsule. Roser believed that non-return was sometimes caused by an enlargement of the subacromian and subscapular bursæ.

In my own experiments, full distension of the subacromian bursæ by injected liquid offered a decided impediment to replacement.

Malgaigne supposed a rent in the capsule was an obstacle.

Broca and Hartman thought that an absence of consolidation in fracture through the glenoid fossa was responsible for non-retention in certain cases.

The recent achievements of Ollier would seem to warrant the hope that in many of these important cases in healthy subjects, we may accomplish much by boldly resecting through the surgical neck and endeavoring to secure fixation and synarthrosis by union of the divided humerus with the scapula. If not, then some description of an elastic brace should be applied over the shoulder and arm, to keep the articular head securely in the glenoid cavity, and there retain it, with the hope that in time sufficient retraction may take place in the overlying muscles to permanently prevent later displacement.

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Therapeutics.

Dyspepsia.

FOR ACID DYSPEPSIA—FERMENTATIVE.

℞. Sodii chloridi.....ʒss
Sodii bicarbonatis.....ʒi
Sodii sulphatis.....ʒiiss

M. et ft. chart. Sig. Small teaspoonful in one pint of hot water an hour before meals. Regulate amount of salts according to bowels—one or two movements daily being desired.
—*H. B. Whitney.*

CHRONIC DYSPEPSIA.

Comby advises that in chronic dyspepsia due to atony and dilatation of the stomach in children, 5 to 10 years old, the following treatment should be continued for ten days, then omitted for the same period and repeated. It is contraindicated in severe pain of the stomach with accompanying great nervous irritability:

℞. Pulv. nucis vomicæ .....gr. 1/6 | 01
Sodii bicarbonatis |
Magnesiæ calcinatæ, āā.....gr. iii | 2
Pepsini .....gr. iss | 1

M. Sig. For one powder to be taken before meals, morning and evening.

HYPERCHLORHYDRIA.

℞. Betanaphthol .....gr. v
Ess. zingib.....ʒi
Olei cajuput.....gtt. i

M. Sig. To be taken in a small quantity of water, followed by larger draught.

Full doses of alkalies to be given at height of digestion.
—*D. D. Stewart.*

A. H. Hoy writes as follows regarding the treatment of dyspepsia, quoted from the Practitioner's Manual:

There are two essential points in the treatment of dyspepsia: 1. In the treatment of all forms of indigestion, be it gastric or intestinal, a sterile diet must be insisted upon. This means absolutely sterile, or at least the attempt to make it so, and admits of no distinction between harmless and harmful micro-organisms. Bread made with yeast, as ordinarily eaten, must be considered a germ-bearer, and butter also, even the choicest brands. It is the assumption that certain germs are harmless in the intestinal tract, which is the cause of failure to relieve many dyspeptics.

The physician should look at this matter from the standpoint of the surgeon and make no distinction as to the kinds of germs. Micro-organisms are of no aid to digestion. On the contrary, they may derange and inhibit the process just as much as they do the healing of a wound.

2. Limit or forbid entirely the ingestion of the organic acids in food or drink. We must remember that digestion is essentially an alkaline process. Even the acidity of the gastric contents is only temporary and must not go beyond narrow limits. It is proven that gastric digestion is not a life-sustaining necessity. It is necessary to a healthy and normal condition of the body, however, that the contents of the small intestine be maintained in alkaline condition, so that peptone can be changed into serum albumin. Nature will neutralize a great amount of free organic acid in the intestine, but the alkali necessary is taken from the blood and hence that fluid loses its normal alkalinity, and a departure from a healthy and normal state at once ensues.

The elimination of micro-organisms and organic acids from the alimentary tract in dyspepsia oftentimes stands in the relation of cause and effect, for the micro-organisms themselves are the great producers of many of the organic acids.

Diet, then, being the great factor in the treatment of all kinds of dyspepsia, some of the distressing conditions may be relieved by the following medication:

FOR NERVO-MOTOR DYSPEPSIA.

℞. Sodii bromidi.....ʒii
Codeinæ sulphatis.....gr. v-x
Carmine, C. P.....gr. xxx
Aquæ destil.....ʒiv

M. Ft. sol. Sig. From half to a teaspoonful in hot or cold water, either before or after eating, as deemed best in each case.

The carmine is not added for color. The writer believes that the carminic acid therein has germicidal powers. The following should be applied to the skin over the region of the stomach by brisk rubbing with a piece of new red flannel:

℞. Ungt. hydrargyri.....ʒi
Olei sinapis.....gtt. xv

M. Sig. Use a piece as large as a bean as directed, night and morning.

For an intestinal germicide the following seems to meet indications most successfully:

℞. Salophen 3i

M. Ft. cap. No. xii. Sig. One capsule before eating. Take no acids while using.

From the same source are quoted the following prescriptions which have been used in the treatment of dyspepsia:

IN FLATULENT INDIGESTIONS.

℞. Zinci sulphocarbolatis.....gr. xii
Pepsini pur.
Pancreatis ext., āā.....ʒss
Bismuthi subgallat .....ʒii

M. Ft. chart. No. xii. Sig. One before each meal. In indigestion, with much coating of the tongue, in nasopharyngeal catarrh, and especially in morning vomiting:

℞. Pulv. ipecac .....gr. viii
Pepsini pur.....ʒss
Pulv. rhei.....ʒi
Sodii bicarb.....ʒiss
Tinct. nucis vomicæ.....ʒiv
Aquæ menthæ pip, ad.....ʒviii

M. Sig. Shake well, and take a teaspoonful before meals in half a glass of hot water. —*L. F. Donohoe.*

In the reflex nervous disturbances of stomach derangement, especially palpitation of the heart, so-called nervous dyspepsia:

℞. Zinci phosphidi
Sodii et auri chloridi, āā.....gr. iss
Ext. nucis vomicæ.....gr. viiss

M. Ft. pil. No. xxx. Sig. A teaspoonful every two or three hours. —*Upshur.*

ACUTE INDIGESTION NOT RELIEVED BY CATHARTICS:

℞. Resorcini .....gr. xl
Sodii chloratis.....ʒi
Mist. rhei et sodæ.....ʒii

M. Sig. A teaspoonful every two or three hours.
—*Andrew H. Smith.*

℞. Acidi hydrochorici dil.....ʒiv
Tinct nucis vomicæ.....ʒii
Liq. potassii arsenitis.....gtt. lxxii
Ess. pepsini.....ʒii
Aquæ, ad.....ʒvi

M. Sig. Two teaspoonfuls in water after meals.

Or

℞. Fellis bovis purificati.....gr. i
Ext. pancreatini.....gr. i
Ext. colocynthidis comp.....gr. ¼
Quininæ hydrochloratis .....gr. ss
Ext. nucis vomicæ .....gr. ⅛
Ext. taraxaci.....gr. i

M. Sig. For one tablet. One or two before meals.
—*Wm. Porter.*

FLATULENT DYSPEPSIA.

℞. Magnesia
Phosphate of lime
Powdered charcoal
Sulphur, equal parts.

M. Sig. Teaspoonful as required, taken in a little water.

Or

℞. Olei creosoti .....m. xii
Spiritus tenuioris.....ʒss
Ammonii benzoatis.....ʒii
Glycerini .....ʒvi
Infusi carophylli, q. s., ad.....ʒvi

M. Sig. Teaspoonful in a glass of water.
—*B. W. Richardson.*

ANTISPASMODIC MIXTURE.

For the violent spasmodic attacks, with great distention of the stomach and bowels, to which some sufferers from flatulence are liable, the following is nearly always efficacious:

℞. Spirit cajuputi (P. D.).....ʒii
Spirit ammoniæ aromatici.....ʒii
Spirit chloroformi .....ʒii

M. Sig. One teaspoonful in a glass of water every half-hour or every quarter-hour until relief is obtained.

FLATULENCE INDICATING GASTRITIS.

When flatulence is associated with pain after food and coated tongue, indicating gastritis, the following prescription should be given:

℞. Potassii bicarb, vel sodii bicarb.....3ii
Spir. ammoniæ aromatici.....3iss
Liq. strychninæ (P. B.).....3ss
Spts. cajuputi (P. B.).....3iss-3ii
Spts. chloroformi.....3i
Infusi calumbæ vel gentianæ co.....℥vi

M. Ft. mist. Sig. A sixth part three times a day between meals. —*Stephen Mackenzie.*

Treatment of Typhoid Fever by Tepid Bathing.

The good effect of hydriatic measures in the treatment of typhoid fever is due not alone to the reduction in temperature brought about, but also to an impression made on the nervous system through its cutaneous terminals. In accordance with the recommendation of Brand, the cold bath has been the measure most commonly employed for this purpose. Immersion of the patient in water at a low temperature is, however, at times attended with serious difficulties. Thus the condition of the patient may seem to forbid it; or the patient may himself resent it; or the friends may interpose sentimental objections. It would, therefore, be a gain if the same results could be obtained by other, and perhaps more agreeable or more acceptable, measures, and it would be an advantage to have a substitute for the cold bath should this be contraindicated. From his experience in the treatment of typhoid fever, at the Brisbane Hospital, Hirschfeld (*Australasian Medical Gazette*, Jan. 20, 1900, p. 22) believes that the tepid bath is such a measure. It is his rule to bathe the patient for twenty minutes in water at a temperature of 85 F., when the temperature taken in the rectum every three hours is 102.2 F. by day or 104 F. by night. Pulse and temperature are noted half an hour after a bath, and, in accordance with the individual reaction of the patient, the baths are continued at the same temperature or are raised to 90 or reduced to 80 degrees. Exceptionally a lower temperature than the latter is required. A purgative is generally given to patients seen in the first week—either 5 grains of calomel, with 40 grains of compound jalap-powder, or from ½ to 1 ounce of castor-oil, with 15 minims of spirits of turpentin. In addition a mixture of quinin and chlorin is administered, being replaced in the third week by bismuth salicylate. When antipyretics are indicated, 20 grains of quinin are given at night, or from 10 to 15 grains of lactophenin thrice daily. Alcohol is relied on to sustain the action of the heart if necessary. The diet is generally wholly liquid while the fever lasts, and includes three pints of milk and two pints of beef-tea. When the tongue clears and the appetite returns, thin corn-flour or gruel is allowed during defervescence.

Hirschfeld contends that the patient does not part with his heat so readily in the cold bath as in the tepid one, because the initial contraction of the blood-vessels of the skin in the cold bath allows less blood to pass through the skin, and consequently less heat is dissipated, but this objection is overcome by vigorous friction of the surface. Further, the shivering of the cold bath is believed to cause rapid elevation of the temperature of the body by lessening the circulation through the skin, and inducing involuntary muscular contractions. Finally, it is thought that while the dissipation of heat is greater in the cold bath, the production of heat is stimulated in the period of reaction.

The statistics that Hirschfeld has to present seem insufficient for a final conclusion. They cover a period of three years, in the first of which the system in vogue, namely, bathing at the natural temperature of the water, was continued; during the part of the next year tepid baths were systematically substituted for cold bathing; and in the third year the tepid baths were employed exclusively. During the first year 266 cases were treated, with a mortality of 7.9; during the second year 147 cases, with mortality of 8.2; and during the third 120 cases, with a mortality of 4.2. The especially favorable results of the last year are not attributed exclusively to the tepid bath, as it is thought the patients may have been seen at an earlier stage of the affection, while in the previous year a considerable number of moribund ones were treated, death resulting within thirty-six or forty-eight hours after reception into the hospital.

For Arrest of Suppuration.

Levurin is the name given to a dried extract of beer-yeast, whose administration has been recommended for the arrest of suppuration and the reduction of temperature. The dose is a teaspoonful, given twice daily, before food, in beer or aerated water or in cachets. At a recent meeting of the Edinburgh Obstetrical Society, Prof. A. R. Simpson (*British Med. Jour.*, March 10) cited cases of tonsillitis, appendicitis, tuberculous ulceration, puerperal septicemia, and pelvic cellulitis in which he had employed the preparation with satisfactory results. The mode of action is not explained.

Treatment of Dyspepsia With Natural Gastric Juice.

The Paris correspondent of *The Lancet*, February 17, p. 502, describes a new plan of treating dyspepsia, proposed by a French clinician and consisting in the administration of from 100 to 150 grams of gastric juice obtained from dogs through gastric fistulæ, and given in divided doses of 25 grams mixed with 75 grams of cold milk, beer or bouillon. The gastric juice is gradually withdrawn until the patient is able to dispense with it entirely. The results obtained have been good and can not be attributed to suggestion. The gastric juice is not easily obtained in large quantities and its production is expensive.

Medicolegal.

Model of Eye Not Scientific Apparatus.—In the opinion of the United States Treasury Department, a model of a human eye imported for an institution established for philosophic, educational, or scientific purposes is not a philosophic or scientific instrument, preparation, or apparatus, within the meaning of, and entitled to free entry under, paragraph 638 of the tariff act of July 24, 1897. The reason given for this ruling is that the article is not used for the purpose of making observations and discoveries in Nature, or for experiments in developing and exhibiting natural forces and conditions under which they can be called into activity, but is intended rather as an object-lesson to classes in anatomy or optics.

Destroys Bar to Action in Injury Case.—While it assents to the doctrine that an action in tort, once barred, can not be revived by a new promise, the Supreme Court of Michigan nevertheless holds, in Renackowsky vs. Board of Water Commissioners of the City of Detroit, that a plaintiff in a personal injury case may meet the defense that his right of action has been barred by the statute of limitations by showing that, before the time fixed by the statute for the bar, the defendant by his course of conduct, led him to believe that a suit to enforce his rights would be unnecessary, and thereby lulled him into a feeling of security, and indueed him to refrain from bringing his action within the period fixed by statute.

Insurance Claimant Can Not Waive Privileges.—On the day before his death, a holder of a certificate of insurance payable to his son had the same changed so as to make his own brother the beneficiary. The son took the matter into court. He alleged, among other things, that when the change was made his father was very ill, and under the influence of drugs, and incapable of comprehending what he was doing. He was also permitted to introduce as a witness the physician who attended his father, and to examine him as to communications made by his father in relation to his physical and mental condition. This, the Supreme Court of Iowa holds, Shuman vs. Supreme Lodge Knights of Honor, was error. It holds that section 4608 of the Iowa Code makes such communications privileged, and the death of the communicant is not in itself sufficient in all instances to remove the bar. The patient, the court goes on to say, may waive this privilege; and in cases of contests of wills, where the parties are claiming

rights to the estate through devise, inheritance, or in a representative capacity, those representing the estate may also waive the privilege. But this case, it holds, did not come within the rule applicable to cases of that character. While both of the claimants of the fund here were blood relations of the decedent, they were neither of them asserting rights in that capacity. Each rested his right on other grounds. Each claimed to be, in effect, an appointee of the decedent. And there is no warrant, the court declares, for making such a case as this an exception to the rule of the statute.

Disease Contracted Before Marriage.—After they had been married and lived together for about ten months, a wife ascertained for the first time that her husband was suffering from a loathsome venereal disease, contracted before his marriage. From the time of this discovery they occupied separate rooms, and the wife, for nearly two years and a half more, nursed and cared for her husband, whose disease became worse. Then, his condition having become so loathsome that she could no longer care for him or nurse him, without danger to her health, she had a talk with him, and told him that something would have to be done, and he said that he would go to his brother's, after which he took his satchel and left, simply saying, "I am going." She sued for divorce, on the ground of constructive desertion. But the Court of Chancery of New Jersey holds that her petition should be dismissed, though without prejudice to her filing a bill for annulment of marriage. It says, Crane vs. Crane, that had the disease been contracted after the marriage, it would seem that the separation under the above circumstances might have been constituted a case of constructive desertion by the husband, as based on a cruelty which was a cause for divorce. But this cruelty relied on as the basis of constructive desertion resulted, not from any act of the husband since his marriage, but was the result of previous misconduct. Wherefore, the court is of the opinion that the only relief of the wife, if she has any, against the man whom she took for better or worse, must be an annulment of the contract of marriage on account of the cruel and outrageous fraud which seems to have been perpetrated. Her conduct in refusing to live longer with her husband, the court goes on to say, seems to have been entirely justifiable, but to call his departure from her house, under the circumstances, a separation of the wife, would, it thinks, create a new cause of divorce, by adopting a construction of the statute relating to desertions which goes beyond the authority of the words of the statute or of any decision.

Can Not Testify to Own Claim For Services.—The constitution of the State of Arkansas provides that "in actions by or against executors, administrators or guardians, in which judgment may be rendered for or against them, neither party shall be allowed to tesify against the other as to any transactions with or statements of the testator, intestate or ward, unless called to testify thereto by the opposite party." This was invoked in the case of Cash vs. Kirkham. Here a physician had presented two accounts against the estate of a deceased person. They were principally for services rendered the deceased and his family. The administrator disallowed them. Then there was a suit over them. In that, the plaintiff was allowed to testify, over the defendant administrator's objection, that he was the attending physician during the last illness of the deceased; that he made forty visits, at $2 a visit; that the cost of an operation on the wife of the deceased was $25; and that the total amount due on this account was $120. The defendant objected to this testimony of the plaintiff, for incompetency—the same being as to transactions with the defendant's intestate. The overruling of this objection and allowing the evidence to go in, the Supreme Court of Arkansas now holds was reversible error. It says that the testimony of the plaintiff tended to prove an implied contract with the deceased, the legal effect of which, as a whole, if true, was an implied promise of the deceased to pay the plaintiff the sum of $105 for services rendered. This was a transaction with the deceased—as much as it would have been had the deceased expressly promised to pay $105. The only difference between the two transactions was that in one case the promise was implied, and in the other it was expressed. Hence, the court holds, the testimony should have been excluded on the ground that the plaintiff was incompetent to testify as to such transaction.

Licensing Barbers.—Mention has already been made, in the department of "Medical News" (Feb. 10, p. 374) of the fact that the Supreme Court of Minnesota has sustained the law requiring all barbers in that state to have licenses. The title of the case in which it has done this, after, as it declares, the statute was assailed from all directions, is State vs. Zeno. Here the court says that laws enacted for the purpose of regulating or throwing restrictions around a trade, calling or occupation, in the interests of the public health and morals, are everywhere upheld and sustained, as being within the police power of the state. Then, it says that it is a fact, of which it must take judicial notice, that the people of to-day come into contact with, and engage the services of, those following the occupation of barber, as much as, if not more than, any other occupation or profession. Besides, it says that it must take notice of the fact, too, that the interests of the public health require and demand that persons following that occupation be reasonably familiar with, and favorably inclined toward, ordinary rules of cleanliness; that diseases of the face and skin are spread from barber shops, caused, no doubt, by uncleanliness or the incompetency of barbers. So it holds that the occupation of a barber is a calling or trade involving the public health and public good, and that the health of the citizen and protection from diseases spread from barber shops conducted by unclean and incompetent barbers, fully justify the law.

Malpractice on Arm.—In Jameson vs. Weld, wherein the plaintiff obtained a judgment for $500 and the Supreme Judicial Court of Maine has overruled a motion for a new trial, malpractice in the treatment of an injury to the elbow of the right arm was charged. That there was a dislocation of both the ulna and the radius was not questioned. The defendant diagnosed the case as one of fracture and dislocation. The plaintiff insisted that there was no fracture, and that the diagnosis and treatment were accordingly wrong. But, if she was in error in this respect, the court says that it still remained necessary to inquire whether, there being fractures, the dislocation was treated with that reasonable degree of skill and care which the law imposes on surgeons. Further on it states that the parties differed most in their testimony with respect to the statements made by the doctor, from time to time, concerning the condition of the elbow and his knowledge of it. And the court says that if her statement was true that, being inquired of by her in the ninth week of the treatment, he assured her that the dislocation had been reduced successfully the first time he treated her, while this would not, of itself, prove want of skill or care, yet the jury would be entitled to give it considerable weight, as showing a purpose to conceal the true condition, for some reason or other. Then, it holds that it is not enough to set aside a verdict that it may be wrong, or that the court might have come to a different conclusion, it not appearing, upon all the evidence, clearly wrong. It also calls attention, with apparent approval, to the fact that it was left to the jury to determine whether, the issue being raised, reasonable skill had been used in letting the arm get stiff, nearly straight, when it might possibly have been somewhat more useful if flexed. Continuing, it holds that in a case of malpractice to an arm, where it is claimed that the present condition of the arm is due to the want of care or skill on the part of the defendant, it is within the discretion of the presiding justice to permit the arm to be exhibited to the jury, although the defendant may claim that the present condition of the arm is due to some other cause. It likewise holds that it is within the discretion of a presiding justice to admit in evidence an X-ray photograph. Whether it is sufficiently verified, whether it appears to be fairly representative of the object portrayed, and whether it may be useful to the jury, it declares, are preliminary questions addressed to him, and his determination thereon is not open to exceptions. The use of the word "pungent," by the presiding justice, in alluding, during his charge to the jury, to iodin or ointment used on the plaintiff's arm, though it may be inaccurate, is not deemed to be prejudicial.

Current Medical Literature.

Titles marked with an asterisk (*) are noted below.

Medical Record (N. Y.), March 31.

1.—*Muscular Rheumatism. I. Adler.
2.—*Observations on Treatment of Cancer. A. R. Robinson and S. Edin.
3.—*Cardinal Pathogonomonic Sign of Fractures of Lower End of Radius (Colles'). Martin W. Ware.
4.— Locomotor Ataxia. B. C. Loveland.

Medical News (N. Y.), March 31.

5.—*Myocarditis in Infancy and Childhood. Henry Koplik.
6.—*Uterine Fibroids Complicated by Pregnancy. Willis E. Ford.
7.—*Toxins from a Chemical and Pathogenic Standpoint. A. E. Austin and I. H. Coriat.
8.—*Alcohol as a General Stimulant and Heart Tonic; Its Use to the Animal Economy in Health and Disease. T. J. Hillis.
9.—*Treatment of Whooping-Cough. Henry Coggeshall.

New York Medical Journal, March 31.

10.—*Gunshot Wounds: Report of Gunshot Cases in Spanish-American War, and Deductions Therefrom. W. C. Borden.
11.—*Report of Case of Tumor of Cerebellum with Drainage of Fluid Through the Nose. G. W. McCaskey.
12.— Arthritis Deformans and the Benefits of Electric Treatment. Margaret A. Cleaves.
13.—*Spontaneous Discharge of Cerebrospinal Fluid from Nose. W. Freudenthal.
14.— Diabetes Mellitus, with Special Reference to its Treatment with Double Bromid of Gold and Arsenic. George D. Barney.
15.—*Is There a Rheumatic Periostitis? Arthur Stern.
16.—*Leucocytosis. J. H. Burch.

Boston Medical and Surgical Journal, March 29.

17.—*Typhoid Spine. R. W. Lovett and Chas. F. Withington.
18.—*Idiopathic Pneumohematothorax with Recovery After Aspiration. Elisha S. Boland.
19.— Bradycardia, with Intermittent Albuminuria. Andrew H. Whitridge.

Philadelphia Medical Journal, March 31.

20.—*Inaccuracies of Home Modification of Cow's Milk. Charles E. Woodruff.
21.—*Case of Polyencephalomyelitis in Adult. Dewitt H. Sherman and William G. Spiller.
22.—*Prevalence and Diagnosis of Leukemia. George Dock.
23.—*Research into Cause of Collapse or Death from Blows on Lower Chest and Epigastrium. George W. Crile.
24.— Case of Membranous Nondiphtheritic Croup with Recurring Laryngeal Stenosis. Herman B. Sheffield.
25.—*Unexplainable Congestion and Enlargement of Left Arm Cured by Exploratory Operation; Splenectomy. Orville Horwitz.

Medical Review (St. Louis, Mo.), March 31.

26.—*Peculiar Form of Fistula of Pharynx. W. Freudenthal.
27.— Some Difficulties in Early Diagnosis of Pneumonia; Clinical Report of Two Cases. L. H. Behrens.

Cincinnati Lancet-Clinic, March 31.

28.—*Some Practical Points in Diagnosis and Treatment of Commoner Forms of Fractures. Louis A. Stimson.
29.— Interesting Case of Pin Transfixing the Eye. Christian R. Holmes.

Railway Surgeon (Chicago), March 20.

30.— Case of Compound, Complicated Fracture of the Femur. J. E. Luce.
31.— Fractures, Sprains and Contusions. James G. Hunt.
32.— Fracture of Femur. W. C. Gates.

Medical Fortnightly (St. Louis, Mo.), March 26.

33.— Faith Cure and Law. E. F. Baker.
34.— Physiology. A. L. Benedict.

American Practitioner and News (Louisville, Ky.), January 15.

35.— Defective Vision and its Disqualifying Consequences. William B. Meany.
36.— Eye-Strain as a Cause of Disease. A. G. Blincoe.
37.— Three Cases of Puerperal Eclampsia out of Four Women Delivered within Ten Days: One Death. Perry W. Fox.
38.— Report of Two Cases of Diphtheria. Joseph Hopson.

Virginia Medical Semi-Monthly (Richmond), March 9.

39.—*Case of Paresthesia Sexualis with Anthropophagous Practices, showing Lesion Pointing to the Angular Gyrus as the Probable Cortical Center of the Sexual Instinct. Richard T. Styll.
40.—*Home and Asylum Treatment of Inebriety. T. D. Crothers.
41.— Indications for and Method of Operating on Middle Turbinated Bone. John P. Davidson.
42.— Chronic Nonsuppurative Catarrhal Otitis. Johnson Eliot.
43.— Fermentative Disorders of the Alimentary Canal of Infants. L. G. Frazier
44.— Removal of Dislocated Columnar Cartilage. F. Y. Chamberlin.
45.— Report of Case of Tubercular Arthritis of Knee. J. W. Henson.
46.— Latent Gonorrhea in Male as a Factor in Diseases of Female Organs of Generation. Lewis Wheat.

Medical Review of Reviews (N. Y.), March 25.

47.— Education and Profession of Medicine. Andrew V. V. Raymond.

American Journal of Obstetrics (N. Y.), March.

48.—*Extrauterine Pregnancy, Early Tubal Rupture; Development of Fetus to Term Free in the Peritoneal Cavity; Celiotomy; Delivery of Living Child; Recovery of Mother. Harry M. Lufkin.
49.—*Round Ligament Ventrosuspension of Uterus; a New Method. D. Tod Gilliam.
50.—*Preliminary Note on an Operation for Suspension of Uterus. Robert T. Morris.
51.—*Pernicious Nausea and Vomiting of Pregnancy; with Report of Case. Edward P. Davis.
52.— Report of Case of Nephrectomy for Pyonephrosis Due to Impaction of Stone in Ureter: with Remarks on Importance of Early Diagnosis and Treatment of Renal Calculi. Charles P. Noble.
53.—*Some Notes on Care of Intestine During and After Abdominal Section. L. Grant Baldwin.
54.—*Clinical Significance of Developmental Duplications of the Uterus and Vagina. Brooks H. Wells.

Therapeutic Gazette (Detroit, Mich.), March 15.

55.— Treatment of Epididymitis. H. M. Christian.
56.— Use of Citric Acid for Relief of Ozena in Atrophic Rhinitis. Lewis S. Somers.
57.— Etiology and Treatment of Epistaxis. P. S. Donnellan.
58.— Use of Croton Oil in Practice. A. K. Bond.
59.— Treatment of Phthisis Pulmonalis with Nascent Chlorid of Ammonia. James C. Ballard.

Post-Graduate (N. Y.), March.

60.—*Results of Panas Operation for Strabismus. D. B. St. John Roosa.
61.— Some Neurologic Notes. Philip Meirowitz.
62.— Gastroptosis. Achilles Rose.
63.— Electric Treatment of Some Forces of Paralysis. Wm. B. Snow.
64.— Non-Operative Treatment of Strabismus; Its Possibilities. A. Edward Davis.
65.— Differentiation and Treatment of Ocular Affections Commonly Met with in Family Practice. Frank Van Fleet.

Peoria Medical Journal (Peoria, Ill.), March.

66.— Four Cases of Appendicitis, with Some of the Lessons That They Teach. J. F. Percy.

Canadian Practitioner and Review (Toronto), March.

67.—*Placental Inspection: Its Uncertainties and Its Dangers. J. F. W. Ross.
68.— Puerperal Septicemia. Adam H. Wright.
69.— Case of Tubercular Peritonitis, Complicated by Insanity. Thomas Ovens.

Journal of Cutaneous and Genito-Urinary Diseases (N. Y.), March.

70.—*Imperfect or Deficient Urinary Excretion as Observed in Connection with Certain Diseases of the Skin. L. Duncan Bulkley.
71.—*Catheterization of Healthy Ureter Through an Infected Region. Howard Lilienthal.
72.— Report of Case of Cutaneous Angiosarcoma. James MacFarlane Winfield.
73.—*Therapy of Impotence in Male. I. Zabludowski.

Canada Lancet (Toronto), March.

74.—*Peptones in Typhoid Fever. Frederick Fenton.
75.— Subcutaneous Abscesses in Connection with a Bacillus in Circulating Blood. Thomas Bradley.
76.— Operations for Soft Cataract. David Webster.
77.— That Running Ear. Perry G. Goldsmith.

Chicago Clinic, March.

78.— Revision of the United States Pharmacopeia from a Medical Point of View. J. A. Patton.
79.— Surgery of the Hand. W. A. Kuflewski.
80.— Disease of the Conus Medullaris. A. Heym.
81.— Some Practical Abdominal Anatomy for Practitioners. W. T. Eckley.
82.—*Inflating Rectal Specula with Detachable Tubes. J. Rawson Penington.

Medical Times and Register (Philadelphia), March.

83.— Address on a Surgeon's View of Value of Drawing to His Profession. Albert H. Tuttle.

Cleveland Medical Gazette, March.

84.— Clinical and Pathologic Report of Two Cases of Genital Tuberculosis. Hunter Robb.
85.— Résumé of Different Methods of Treating Hydrocele. Nicola Cerri.
86.— Report of Case of Septicemia, with Metastatic Abscesses and Cicatricial Contraction Retarding Labor. Charles L. Webster.

Illinois Medical Journal (Springfield), March.

87.—*Mechanical Method of Treating Sciatica. C. C. Hunt.
88.—*Why and When Operate for Appendicitis? W. F. Grinstead.
89.—*Medicolegal Aspect of Bright's Disease. Columbus Barlow.
90.— Diagnosis and Clinical Course of Puerperal Eclampsia. Frank B. Earle.
91.— Unusual Case of Perforating Gastric Ulcer. C. W. Hall.
92.—*Two Affections of Knee-Joint: Gonorrheal Synovitis; Loose Body in Joint. Geo. N. Kreider.

Obstetrics (N. Y.), March.

93.— Advisibility of Inducing Premature Labor in Syphilitic, with Prolapse of Uterus and Bladder. Thomas S. Bullock.
94.— Puerperal Septicemia, and Some of the Methods of its Prevention. Wesley A. Rape.

Western Medical Review (Lincoln, Neb.), March 15.

95.— President's Address before Nebraska State Medical League. J. W. Bullard.
96.—*Congenital Hip-Joint Displacements. John Prentiss Lord.
97.—*Diagnosis of Abdominal Tumors. M. L. Harris.
98.—*Oöphorectomy for Grave Functional Nervous Diseases Occurring during Menstruation. D. C. Brockman.
99 — Abortion. (*Continued.*) A. D. Wilkinson.

St. Louis Clinique, March.

100.— Pollution of Drinking Water by Sewage. J. E. State.
101.— Some Newer Therapeutic Agents. C. W. Lillie.

102.— Treatment of Rickets. Robert C. Kenner.

Ophthalmic Record (Chicago), March.

103.—*Clinical and Histological Study of Melanotic Sarcoma of Choroid, with Recurrence of Growth in the Orbit Five Months After Enucleation of Eyeball and one Extra-Scleral Mass. G. E. de Schweinitz.
104.— Profuse Recto-Choroidal Hemorrhage after Iridectomy for Chronic Glaucoma. F. C. Hotz.
105.—*Snow-Blindness. S. Mitchell.
106.— Fatigue from Effort to Maintain Binocular Single Vision. George J. Bull.
107.— Brief Clinical Study of Conjunctival Ulceration. H. McI. Morton.
108.— Case of Fracture of Orbit, with Unusual Symptoms. Geo. E. Bellows.
109.— Nystagmus Osculatorious Verticalis. W. P. Malone.
110.—*Chloretone (Tri-Chlortertiary-Butyl Alcohol) in Ophthalmic Practice. H. McI. Morton.
111.— Muscular Asthenopia. E. H. Hazen.

Southern California Practitioner (Los Angeles), March.

112.— Description of Cystoscopes for Catheterizing of Ureters. Granville MacGowan.
113.— Vis Medicatrix Naturæ. R. J. Gregg.
114.— Encysted Hydrocele of Testis, Bilateral. Ralph Williams.
115.— Suggestions on Systematic Discounts in Collection of Surgeon's Fees. Ernest Hall.
116.— How to Give an Ice-Cold Sponge Bath. Mary L. Mulholland.

Carolina Medical Journal (Charlotte), March.

117.— The Southern Negro; His Recent Erotic Tendencies; Causes; Suggestions as to Prevention. S. C. Baker.
118.— Cases of Mastoid Inflammation. Charles W. Kollock.
119.— Gunshot Wounds of Knee-Joint. Manning Simons.
120.— Syphilitic Gangrene (?); Case Involving Scrotum and Perineum. William R. Lowman.
121.— Causes and Best Method of Treating Deafness in Children. Edward F. Parker.
122.— Few Operations by Country Doctor. W. P. Timmerman.

Interstate Medical Journal (St. Louis, Mo.), March.

123.—*Lethargy and France. Thomas M. Madden.
124.—*Etiology of Acute Tonsillitis. William J. Class.
125.— Preliminary Report on Etiology of Scarlatina. R. B. H. Gradwohl.
126.— Use of Forceps. Denslow Lewis.
127.— Sea-Sickness. J. B. Busdraghi.
128.— Four Cases of Diabetes Mellitus of Apparent Bacterial Origin, and Their Successful Treatment. J. P. Sheridan.

Medical and Surgical Monitor (Indianapolis, Ind.), March 15.

129.— Address Delivered at Commencement Exercises of St. Vincent's Training School for Nurses. L. H. Dunning.
130.— Persistent Eructations: Report of Case. Edward M. Amos.
131.— Suppurative Hepatitis; Report of Case and Autopsy. A. T. Stewart.
132.— Auto-Intoxication. D. L. Field.

Hot Springs Medical Journal, March.

133.— Intestinal Auto-Intoxication; Its Prevention and Treatment. W. F. Barclay.

Kansas City Medical Record, March.

134.—*Formic Aldehyde as a Preservative of Milk. J. Moechel.
135.— Glycosuria. O. H. Parker.

Texas Medical News (Austin), March.

136.—*Grant's Cheiloplastic Operation for Restoration of Lip; Report of a Case. Joe. S. Wooten.
137.— Interpretation of the Skiagraph. Albert Woldert.
138.— Obstetric Notes. I. L. VanZant.
139.— Right to Hasten Death. Albert Woldert.

AMERICAN.

1. **Muscular Rheumatism.**—Adler combats the definition of Lorenz that muscular rheumatism is a functional trouble dependent on no particular lesion and due to cold, and maintains that it is, according to all probability and analogy, an infection with a probable streptococcus, perhaps staphylococcus origin, of attenuated virulence. He recognizes that a certain degree of individual predisposition contributes, augmented by indolent and sedentary habits, by improper nutrition, especially immoderate and over-rich diet and alcoholics. He also thinks that climate, probably in some way as yet unexplained, has an influence. Anatomically the disorder must be designated as an interstitial myositis, usually with inflammatory processes in adjacent tissues, the fasciæ, subcutaneous and fatty tissues and especially the nerves; in the latter the process is likewise that of interstitial neuritis. As sequelæ of the inflammation there are cellular infiltration, connective-tissue indurations, and sometimes even the complete fibrosis of the muscles. These generally exist after the abatement of the inflammation, and give rise to more or less frequent relapses and manifold functional disturbances. Medicinal treatment is indicated in the acute more or less febrile stage. As soon as this is over mechanical treatment is needed, especially adequate and proper massage, to bring about absorption of the infiltrations and indurations and to restore the muscle to its normal conditions. Since this paper was written he adds a postscript. Wassermann has succeeded in isolating a streptococcus from the blood and viscera in a case of endocarditis, nephritis and chorea following rheumatism. Cultures of this in the rabbit invariably cause polyarticular rheumatism. This he thinks is suggestive of other micro-organisms being found for muscular rheumatism.

2. **Treatment of Cancer.**—The conclusions of Robinson's paper and summary of his arguments are as follows: 1. We know of no drug, animal extract, serum, nor toxin, which, given internally by any avenue of the body, can be relied on for the cure of cancer of any part of the system. 2. The statement that the knife is the only reliable agent in the treatment of cancer is not correct. 3. Certain caustics judiciously chosen and properly applied may attack deposits of the growth inaccessible to the knife, and in these cases should be employed even if the knife is necessary to prepare the way for their use. 4. In some cases both the knife and caustics should be used, and in some other cases curettage, followed by a caustic, is the proper procedure. 5. The majority of cases of cutaneous cancer can be removed with the greatest certainty and with least deformity by caustics, provided the patients are seen before the lymphatic glands are invaded. 6. The knife should be used when the lymphatic glands are invaded, and, also in some other cases of external cancer.

3. **Cardinal Pathognomonic Sign of Colles' Fracture.**—Warne calls attention to the unreliability of the occurrence of silver-fork deformity in Colles' fracture, notwithstanding the prominence that has been given it, and believes he has now found a pathologic sign in the fact that the styloid of the radius is at a lower level than the styloid of the ulna. With the hand in a prone position and on the same plane with the bones of the forearm, this sign is most readily ascertained by impinging the thumb and index finger against the styloids; and projecting the line between these two points, it will take an oblique course, slanting to the radial side. The only mention of this sign that is known to him is in Stimson's treatise on "Fractures and Dislocations." In estimating, the normal wrist must be taken in comparison. The facility of its clinical application renders it of greater value; he calls it a "cardinal pathogmonic sign of Colles' fracture."

5. **Myocarditis in Infancy and Childhood.**—After first noticing the lack of mention of the subject in text-books, and the fact that in daily practice myocarditis is one of the most trying and one of the most important conditions, Koplik reviews the facts known in regard to its pathology and in acute infectious disease. It is more frequent than is supposed, and it is not always as fatal as text-books would lead us to suppose. The muscle of the infant's heart must be capable of restoration to a larger extent than would be supposed when we consider the vast number of infections to which it is subject. He notices the striking effects of diphtheria antitoxin, showing that the toxic action of the disease has been arrested not only in other organs but in the muscle fiber of the heart itself. He then reviews the various conditions in which this complication may occur, with illustrative cases, such as syncopal attacks and infectious pneumonias, pertussis, etc. The prognosis of rheumatic cardiac affections is much more favorable in children than in adults, but the most trying cases are those of adherent pericarditis. The possibility of diagnosis during life and the puzzling character of the problem are noticed, and the author points out the symptoms which should put us on our guard. If, in the course of an infectious disease, we have attacks of faintness, pallor, vomiting, disturbed and very irregular heart action, a persistent distortion of the respiration and pulse ratio as in adherent pericardium, it is certainly significant, especially if these attacks have a tendency to recur. If examination of the heart shows extreme weakness of the apex-beat, weakness of the first sound, or disappearance of its muscular quality, greater intensity of the second sound at the apex, with intensification of the second sound at the pulmonic orifice, we certainly in these have danger signals of greatest moment. If, in addition, as in pertussis, we have other signs of cardiac insufficiency, such as slight systolic blow at the apex, edema of the face and extremities, pallor and

cyanosis, disinclination to exertion, constant drowsiness, it would be certainly narrow, in view of our pathologic and experimental knowledge, not to entertain the possible existence of serious degenerative changes in the heart muscle. We should never forget that in the heart we have healthy tissue on which our drugs and methods are supposed to act. We must not exhaust these healthy foci by powerful drugs or harsh measures; the strength must rather be fostered. The hope of these cases then lies in well-sustained nutrition.

6. **Uterine Fibroids in Pregnancy.**—Remarking first that fibroid of the uterus does not necessarily imperil life, but its situation renders it important, and that pregnancy probably occurs more frequently in fibroid uterus than was formerly supposed to be the case, Ford discusses its dangers. They are chiefly rupture of the imperfectly developed fibroids, the prevention of the normal first stage by the presence of inelastic tissue of the neck or displacement of the uterus so as to distort the natural birth passages, and finally sepsis following infection after delivery. He reports a number of cases, with illustrations, which seem to him to indicate that the rule may be established that where the lower third of the uterus and the entire cervix are free from neoplasms, the physician may safely await the result, even if the fibroid is of considerable size. If any considerable fibroid is found opposite the internal os, especially if it blocks the canal, questions as to early operative interference may arise and the answers are governed by its position. The dangerous position of the fibroid is in the anterior wall of the uterus, low down, as it would interfere with Cesarean operation. Impacted fibroid requires early hysterectomy unless it can be released or is so high as not to involve the lower third of the organ. Rupture is sometimes caused by a small fibroid in the lower uterus or cervix after delivery at term or miscarriage. If fibroid exists and becomes infected, hysterectomy should be done at once, and in every case of fibroid uterus where pregnancy occurs, the patient should be carefully watched, especially if it exists in the lower half of the uterus.

7. **Toxins.**—Austin and Coriat's paper is a general discussion of the subject of toxin production and the nature of toxins, with a report of experiments. The greatest difficulty they had was in the small amount of substances which could be obtained, and while they say that no special new points were developed, they hope to continue the researches with greater results.

8.—See last week's JOURNAL, ¶21, p. 865.

9. **Treatment of Whooping-cough.**—Coggeshall, after first noticing the methods reported, suggests cocainization of as much of the mucous nasal membrane as can be done with a spray, followed by cotton tipped probes wet with the solution, and application of a 2 or 4 per cent. nitrate of silver solution to the nose and nasopharynx, to be followed by a mild alkaline and antiseptic wash by spray or post-nasal douching. This treatment is hardly adapted to young infants, but can be used for children of 3 years or over. He believes that the good effect of belladonna is partly due to its action on the nasal mucous membrane in this disease, and he suggests the use of suprarenal extract.

10. **Gunshot Wounds.**—From experience of gunshot cases in the Spanish-American War, Borden concludes that if antiseptic methods were in use during the Civil War, the results would have been so different that it would have been seen that it is surgical methods and not a particular bullet that most influences the results. We are giving too much credit to the humane character of the modern military projectiles. In his experience he had not only wounds from Mauser bullets, but shell, shrapnel and revolver wounds, and he believes that in some cases the new bullet produces wounds as destructive as those made by the old slow-going projectile. Shell wounds are generally infected, and therefore differ from the majority of gunshot wounds that are properly treated in the field. The treatment must be rather antiseptic than aseptic. Shrapnel wounds, which from the character of the missile would be supposed to produce the same effects as old lead bullets, he finds, if proper first treatment is used, are very much like those of the small-caliber jacketed missile. If these had been probed according to old methods, the results would have been similar to former experiences. The principal point made in his paper is, as he said in the beginning, that it is modern surgical methods rather than the character of the weapon which have most to do with success of modern military surgery, though something must be allowed for the small-caliber and rapidity of modern rifle projectiles. The article is to be continued.

11. **Tumor of Cerebellum and Drainage of Fluid Through Nose.**—McCaskey reports a case of cerebellar tumor in a young woman, which presents some peculiar features. The patient lost her hearing for a period of three months, but about two months before death she began to have a free discharge of serous fluid from the right nostril, which ran a steady stream or dropping amounting to several ounces a day, and with this her hearing returned. The tumor was a mixed angioma originating on the anterior margin of the left lobe of the cerebellum. Another point of interest in the case was the great intensity of optic neuritis of the side corresponding to the tumor. The patient died in a convulsion about three years after the first examination.

13. **Nasal Discharge of Cerebrospinal Fluid.**—The literature of this subject is noted by Freudenthal. He finds that there has been but one case similar to the one he reports, published in this country, though two other cases are somewhat doubtful. The most important publication on the subject is that of St. Clair Thomson, which has been previously noticed in THE JOURNAL. In Freudenthal's patient the discharge is regular though it had been subject to intermissions and these were associated with symptoms of brain pressure. Before the flow commenced also the serious brain symptoms were present and disappeared at its onset. He is inclined to think there may be a tumor in the brain situated near the optic chiasma. He discusses the diagnosis of cerebrospinal fluid from other forms of nasal hydrorrhea, and thinks that the absence of mucin and presence of reducing substance—sugar—suffice to confirm the opinion that the serum is of cerebrospinal origin. He calls attention to the fact that in the majority of cases reported thus far, the left nostril was the route of discharge; why this should be is not determined. Treatment is hopeless; no attempt should be made to stop the flow. In his case the recurrence of serious symptoms during intermissions is so evident that the patient herself appreciates this.

15. **Rheumatic Periostitis.**—From the case here reported, in which there was a periosteal inflammation on the sternum and the clavicle, together with rheumatic swellings of the ankles and knees, Stern believes that there is such a thing as rheumatic periostitis and that this is evidence of the infectious nature of rheumatism. As yet we have not been able to determine the organisms producing the disease, but knowing the general nature is a step toward a better understanding and treatment.

16. **Leucocytosis.**—Burch estimates the normal number of leucocytes as two polymorphonuclear leucocytes to each microscopic field, one small lymphocyte to every five fields, one large lymphocyte to each ten, and one eosinophile to twenty fields. This necessitates counting the number found in at least twenty-five, or better, 100 fields, and averaging the total found in this way. He thinks reliance can be placed on the aforesaid ratio. He has examined various diseases, pneumonia, typhoid, and tuberculosis, as regards their leucocytes and he reports several cases illustrating the value of blood examination in different disorders. In one he found diagnosed appendicitis transformed into a case of impacted colon. In another acute tuberculosis was revealed, and in a third syphilis was suggested from the microscopic blood examination.

17. **Typhoid Spine.**—The condition to which this name was given by Gibney, and which was considered by him to be due to a perispondylitis, and by Osler a neurosis, is illustrated here by a case reported by Lovett and Withington. In this instance there was a well-marked knuckle or projection of the spine in the lower dorsal region, which was evidently due to a destructive inflammation of the vertebral bodies. A periostitis could not explain it; one must assume an osteomyelitis to have been present. As far as the writers have learned this is the only case of well-authenticated typhoid spine accompanied

by deformity. Had the deformity not appeared it would have been considered a post-typhoid neurosis.

18. **Idiopathic Pneumohematothorax.**—A case reported by Boland is of interest as being an instance of apparent idiopathic pneumohematothorax of primary origin. It suggests, as the author says, that: 1, we can have (practically) a primary pneumohematothorax; 2, without diagnostic aspiration we can not be sure of the nature of any pleural effusion; 3, aspiration may precipitate an influx of air into the pleural cavity even if the lung is not touched by the needle; 4, the pleural cavity can, unaided, take care of aseptic blood as well as of air.

20. **Home Modification of Cow's Milk.**—The difficulties of home modification of cow's milk for infant diet are pointed out by Woodruff. He says that in the first place we should know the exact composition of the ingredients, which is impossible outside of the laboratory. There is a wide difference between milk from different cows, or from the same cow, and it is practically impossible to tell the extent except by analysis of its composition. In the second place even in the human milk there are marked variations, all of which may be tolerated by the healthy babies since they live in spite of bad feeding. Absolute accuracy can not be so important as we are told. In the third place accuracy is ruined by the inaccuracies of woman's methods. She does everything by rule of thumb: we have to guess to keep up with her guessing. In the fourth place infants vary so greatly that it is difficult to say what one will stand, and in the fifth place specialists are not agreed as to the exact proportions of proteids, fats and sugars to use. He sums up the average recommendations of specialists and in conclusion speaks of the importance of pasteurization or thorough sterilization. He says that if most breast-fed infants really get 1.5 per cent. of proteids, 4 per cent. of fat and 6 to 7 per cent. of sugar then we will not be much in error for all babies over eight weeks old, if we dilute 3 parts of a 10 or 11 per cent. cream with 5 parts of water and add 5 or 6 level teaspoonfuls of milk-sugar, the total amount being the stomach-capacity multiplied by the number of feedings, and this rule of thumb may be as near as we can come to accuracy in the average household.

21. **Poliencephalomyelitis in Adult.**—The case reported by Sherman and Spiller, in detail, with autopsy findings and pathologic report, presented a clinical picture of Landry's paralysis. Dr. Spiller, in his summary of the pathologic findings, discusses the literature of similar cases and concludes that: 1. Landry's paralysis may be due to poliomyelitis, and a number of cases reported under the name of Landry's paralysis are cases of poliomyelitis. 2. Poliomyelitis is an infectious disease, probably resulting from invasion by different forms of bacteria, and the inflammation is greatest in the anterior horns, but occurs in the posterior horns, in the white matter and meninges. 3. The symptoms are motor in type because the diesase is especially one of the anterior horns. 4. Meningitis is not uncommon in poliomyelitis. 5. Poliomyelitis in the adult is essentially the same disease as poliomyelitis in the child. 6. Poliomyelitis is closely related pathologically to the nonpurulent form of encephalitis and to the poliencephalitis superior of Wernicke.

22. **Leukemia.**—The frequency of chronic leukemia, in the University Hospital at Ann Arbor is noticed by Dock, who compares it with the observations of others and calls attention to the peculiarities and difficulty of its diagnosis. He holds that routine exact examination of the blood is necessary if we are ever to recognize the disorder in its first stage, and he also points out the methods for distinguishing splenic tumor from that of other organs. In general leukemia is not diagnosed until both leucocytes and red corpuscles are markedly altered from the normal.

23. **Effect of Blows on Lower Chest and Epigastrium.**—After giving the methods of research and details of his experience, with blood-pressure tracings, Crile concludes that no amount of injury inflicted on the solar plexus, directly or indirectly, is capable of causing any inhibitory action on the heart, and such injury in no case contributed to immediate death or collapse. Its effect was to produce a vasodilation of the "splanchnic area," causing a gradual decline in blood-pressure. While the abdomen is open and the diaphragm protected from violence, blows on the stomach produce little effect on blood-pressure or respiration, but where the diaphragm is not protected the blows on the pit of the stomach sometimes produce a momentary staggering fall in the blood-pressure. Pressure suddenly applied or blows directly on the diaphragm, within the cardiac zone, usually produce a marked drop. Even careful pressing of the hand upward against the diaphragm so as to produce an interference with the free movement of the apex causes very great cardiac irregularity and irregularity of blood-pressure. Blows on the lower chest, especially over the cardiac area, produce various results, in one case immediate death followed. Respiratory action is also suddenly arrested. The commonest result was a great drop in blood-pressure—a collapse with gradual restoration. The results vary somewhat in different animals, but as a general rule the nearer the blows are given over the center of the cardiac dulness the greater the effect. Blows on the naked heart produce similar though more pronounced effects. The evidence seems to show that the solar plexus may be disregarded as a factor, and the result is due to mechanical effects and violence either on the heart itself or its nerve mechanism. Though both vagi have been previously severed, similar results are produced and he holds that collapse and death may be caused wholly independent of the vagi, though the vagi probably usually contribute somewhat to the results. The causes of collapse and death from violence on the lower chest and abdomen are due mainly to loss of rhythmic contractions from the mechanical irritation of the heart-muscle itself.

25. See abstract in THE JOURNAL of March 3, p. 560.

26. **Fistula of Pharynx.**—Freudenthal reports a case of fistula of the pharynx, connected with disease of the ethmoidal and frontal sinus, which was completely relieved by attention to those parts. He thinks the infection first took place through the pus burrowing down from the ethmoid through the sinus maxillaris and from there through the fistulous tract to the pharynx.

28. **Diagnosis and Treatment of Fractures.**—Stimson points out the difficulties and the simple means often available in diagnosing the various fractures, for instance on the upper end of the humerus in a fleshy person, which is readily diagnosed by longitudinal pressure of the bone, or ulna, which can be told by holding the hand in your own and asking the patient to press against it. Colles' fracture is diagnosed by pressing the hand up toward the elbow straight or a little to the upper side, causing pain. In the leg, the test of pressure along the line of pain is also of value in a similar way. He also calls attention to the dangers of too much manipulation in fractures, especially of the neck of the femur, by taking away the periosteal bridge by which the bone is nourished. In any case the old rule of Hodgson is still applicable in any case of injury to an old man or woman where there is a disability of the limb; treat it as a fracture of the neck of the femur. If we could have only one sign of fracture, he would ask for pain, pain in pressing the ends of the long bones together, pain in pressing along the line of fracture, pain in the exercise of the function of the limb, for a diagnosis. This applies only to fractures in the continuity of the long bones. In fractures that are not along the line of pressure this does not apply. In regard to treatment, in any injury of the hip in an old person, it should be treated as fracture of the neck of the femur. In the treatment of some cases, details do not count, in others they are of very great importance, especially in articular fractures, in oblique fractures where the displacement is great, or where the sharp ends penetrate the tissues. In these cases we should spare no pains to get the details of the fracture and the displacement. In some cases of extensive injuries we wonder whether the tissues are dead, and whether the limb can be saved; he gives as a simple test the use of the Esmarch bandage. If this is applied for five mintes and the limb and parts noted where the blushing does not appear and where it remains white, that skin is dead. He also cautions, in cases where great violence has been done, against being too satisfied with finding one fracture—always look for further

trouble. As regards plaster-of-Paris encasements, he prefers to wait until the swelling has gone down, and it should always be inspected the day after its application. The author mentions ischemic contracture of the fingers due to insufficient blood-supply. He remarks also on the splints for limbs and on dislocations, and calls attention to the use of gravity in reducing dislocations of the shoulder and hip.

39. **Paresthesia Sexualis.**—Styll's article is a discussion of the case of a murderer of the Jack the Ripper type, in whom a cyst was found in the anterior part of the angular convolution of the right hemisphere, which the author correlates with the sexual perversion.

40. **Home and Asylum Treatment of Inebriety.**—The points which Crothers wishes to make prominent in this article are summed up in the following: 1. The treatment of inebriety extends back twenty centuries and more, and the recognition as a disease is still more ancient. 2. Its prominence and the increasing urgency for relief from medical men demands a new study of the whole subject along a scientific line. 3. The inebriate is literally poisoned, and starved, and degenerate, and there is no mystery about his condition or the results of treatment. 4. The possibility of restoration and cure is established beyond question. 5. Gold and other specific cures are only the application of common remedies, which every physician could use with great skill and success. 6. Every case can be restored and many of them permanently cured, by the intelligent co-operation of the family and asylum physicians. Both home and asylum treatment are invaluable. 7. The public treatment of pauper inebriates and the incurable classes will be carried on in workhouse hospitals specially organized for this class. The treatment for those able to pay will be in special private hospitals, where the best means of science can be combined to meet the wants of each case. 8. The successful cure and prevention of inebriety is largely an unoccupied medical field, the solution of which opens up a new realm of practice, promising the greatest possibilities, which, in the near future, will be occupied.

48. **Extrauterine Pregnancy.**—In the case reported by Lufkin, the fetus went to term apparently free in the abdominal cavity. There were none of the signs of any limiting sac, and he discusses the opinions in regard to the possibility of such a condition. He himself is of the opinion that it was a free intraperitoneal pregnancy from not later than the third month.

49. **Ventrosuspension.**—Gilliam reports his modifications of Ferguson's method of suspending the uterus by the round ligament. The basis of the principle of the operation is the invagination of the proximal portion of the round ligaments in the abdominal wall as evolved by Ferguson. The successive steps of the operation modified by Gilliam are: 1. A median abdominal section three to four inches long in the usual position. 2. Break up adhesions and bring fundus forward. 3. Seize the Fallopian tube and bring it to the opening, for which purpose he has devised two special forceps. 4. Carry a heavy silk thread under the ligament close to the forceps in such a manner as to include a little of the tissue of the broad ligament. 5. The forceps holding the tubes and round ligaments are now removed. 6. The other round ligament is secured in the same way and the ends of the thread brought out of the abdomen and held in the bite of another clamp forceps. 7. Retract the skin and superficial fat on one side until an inch or more of the rectus muscle is exposed. 8. Thrust the perforating forceps through into the peritoneal cavity and seize the thread which holds the round ligament. 9. Remove the clamp forceps from the thread. 10. Withdraw the perforating forceps. 11. While the ligament is held taut, fasten it into the wound by catgut sutures passed through its base and including the tissue of the other side including the entire thickness of the wall. 12. The exposed free loop of the ligament is now spread out on either side of its point of emergence and tacked down with catgut so as to form a button or bar. This is intended to prevent retraction. 13. Treat the opposite side in the same manner. 14. Close the median abdominal incision.

50. **Suspension of Uterus.**—Morris also describes a similar operation as follows: The abdomen is opened in the middle line. A hook is inserted through the round ligament at a point midway between the uterus and the inner inguinal ring. The round ligament is angulated by strong traction on the hook. The peritoneum is stripped away from the ectad face of the angulated ligament, but remains attached at the base of the angle. Two parts of the bared round ligament are approximated at the base of the angle with a suture of chromicized catgut. This throws two or more inches of the round ligament ont of the function. The bare face of the loop of the ligament that is thrown out of function is re-covered with a flap of peritoneum that previously belonged to it. The other round ligament is treated in the same way. He has done this in some twenty cases, with success so far as the operation is concerned; the results during and after pregnancy are yet to be seen and this note is published at this time in order to fix the responsibility for the operation.

51. **Vomiting of Pregnancy.**—After reporting a case Davis summarizes the salient features of the condition as follows: In a considerable number of cases of pernicious nausea of pregnancy the womb is sharply anteflexed and the cervix extraordinarily thickened. The pelvic organs are forced strongly downward and forward, and a contracted condition of the pelvic fascia and muscular tissue is present, which may be termed "pelvic tenesmus." In other cases the uterus is retroflexed or retroverted. These patients are much relieved by raising the uterus as far as possible in the pelvis and by stretching the cervix. The latter is done at the risk of bringing on abortion, but is sometimes effective in stopping nausea and in enabling the patient to go to term. The salient feature in the symptoms of these cases is nausea and not vomiting. Many of the worst cases vomit but once or twice in twenty-four hours, but are nauseated while awake. Coupled with this, and resulting from it, is the profound mental and physical depression from which these patients suffer. Especially significant in the symptomatology of these is the obstinate, boring, burning pain beneath the sternum, and the discharge in the vomit or bowel movements of coffee-ground material, which is recognized as decomposed hemoglobin. He has found no adequate explanation for the substernal pain, although it has been noted in other patients, not pregnant, who suffer from pernicious anemia. Coffee-ground vomit has been observed repeatedly in nephritic patients and in those suffering from extensive degenerative disease. He finds that in successful treatment the patient should be fed, put to absolute rest and her strength so recruited that her nausea gradually ceases, then she can go on to recovery. The replacement of the uterus to a better position and stretching of the pelvic and cervical tissues is an important aid. Unless these measures succeed the pregnancy must be ended.

53. **Care of Intestine in Abdominal Section.**—The points made by Baldwin are the administration of morphin and atropin as an aid to the ether anesthesia; the anticipation of uterine paralysis by the administration of a laxative prior to anesthesia, which he has followed as a routine practice with good results. He also insists on the importance of a small incision and as little use of packing as possible. Cleansing of the abdominal cavity is best done, he thinks, by means of a large funnel with rubber tube, the latter passing completely to the bottom of the pelvis before allowing the water to run—thus floating off all debris from the bottom. When this is satisfactorily done he siphons out the water. The abdomen may be filled with a fresh salt solution; the amount left will vary in different cases. Every case of abdominal section before being removed from the tables receives an enema consisting of one quart of normal salt solution, one ounce of whisky, and twelve minims of Squibb's compound of opium. The normal salt solution injection, without the whisky and opium, in half the amount is repeated every two or three hours until the patient is able to take food by the mouth, which is encouraged as early as possible. To keep the intestines out of the pelvis Clark's method is used. He secures the free action of the bowel at the end of twenty-four hours by the measures already described and the administration of from 10 to 15 grains of

calomel in capsule, twelve hours after operation, followed about six hours later by administration of Epsom salts dissolved in hot water. At the first evidence of distension of the large intestine high enemas are commenced and not discontinued until gaseous or fecal movements have been secured. He notices Byford's suggestion of producing early movements of the bowels, and recommends Watkins' formula for enemas of two ounces of Epsom salt, one of glycerin and three of water, given through a large tube.

54. **Uterine and Vaginal Duplications.**—Wells' paper is an analysis of 112 cases of duplication of the female genitalis.

60. **Panas Operation for Strabismus.**—This operation consists essentially in stretching the muscles before the division and dividing interni or externi muscles as the case may require. Roosa reports 36 cases, 31 personal ones, with results. The perfect results—so-called parallelism of the eyes—resulted in 32 of the 36. The other 4 are still under observation and ultimate cure is hoped for. The dread of over-effect of stretching the muscles and their simultaneous division is, he thinks, unwarranted.

67.—See abstract in THE JOURNAL of February 24, p. 497.

70. **Deficient Urinary Excretion in Skin Diseases.**—Bulkley gives a study of 2000 urinary analyses in patients suffering with skin disease, with results not very conclusive as regards any specific positive facts. They do not indicate that any special urinary changes can be demonstrated as having direct connection with any particular skin lesions, but they do show evidence of deranged assimilation and disassimilation. Very few represented the urine of normal health.

71. **Catheterization of Ureters.**—Lilienthal's paper is largely a protest against the practice of catheterizing sound ureters. He thinks that while the value of catheterization of the diseased side is great, that of the other is perilous and hardly justified by the needs of the case. In some cases the kidney may be unmistakably palpated, in others the mouth of the ureter may be inspected with the cystoscope and when these means fail, at the time of the contemplated nephrectomy, a small incision can be made which will permit of the ocular demonstration of the condition of the other kidney without serious additional risk. If catheterization of the other ureter is practiced it is by no means certain, as Wossidlo says, that the kidney which functionates normally before nephrectomy will continue to do so afterward.

73. **Impotence in the Male.**—Zabludowski recommends general massage: 1. Directed to the genital apparatus and its vicinity. 2. To the spine by means of reflexes. 3. To the body generally, the vessels and lymphatics. 4. To the brain centers, giving rise there to certain images. The necessity of avoiding sexual excitement during treatment, and of healthful bodily exercise within the fatigue limit should be emphasized. The following are given as special directions: 1. In case of pollution, the sleeping arrangements must be changed from bed to sofa, with a bolster under the feet. In one severe case of over twenty years' standing a remarkable result was effected by directing him to use at night, in place of the bathing-trunk to which he was accustomed, a condom. The emissions ceased. Beverages at night are forbidden, and the supper hour changed. 2. In cases of spermatorrhea from interrupted coitus, and in cases of prostatorrhea, particular attention is given to the massage of the prostate and abdomen and the habit replaced by the use (in the women) of occlusive pessaries. 3. In cases of general disturbance after the shock or exhausting illness, general massage is most beneficial, especially on the heart. This massage works in diabetes and obesity as a compensation for a strict dietary regimen. 4. A good prognosis should always be given to men about to marry, who are fearful of their sexual capacity, and to married men whose intercourse is obstructed by vaginismus. These do well. 5. In relative impotence, absence of erection in familiar conditions, a change brings about good results. 6. When there is disturbance in the secretion of urine, particular attention is paid to the perineum and bladder, and sleeping arrangements are changed. Benefit is sometimes secured by sleeping on some unusual material, such as rubber, leather, or linoleum.

74.—See abstract in THE JOURNAL of October 28, 1899, p. 1104.

82.—Ibid., February 17, p. 425.

87. **Mechanical Treatment of Sciatica.**—The method indorsed by Hunt is the use of the Hodgen splint, giving rest to the parts by suspension. He finds it a most valuable agent in the treatment of this disorder, and reports several cases.

88.—See abstract in THE JOURNAL of June 3, 1899, p. 1257.

89. **Medicolegal Aspect of Bright's Disease.**—Barlow believes that many cases of Bright's disease are accompanied by testamentary incapacity, and reports one or two instances. He thinks that any person suffering from nephritis with any cerebral symptoms should have his mental capacity tested before making his will.

92.—See abstract in THE JOURNAL of June 3, 1899, p. 1257.

96.—Ibid., January 27, p. 233.

97. **Abdominal Tumors.**—This article largely covers the ground of the paper published in THE JOURNAL, Feb. 11, 1899. The author calls attention to the importance of distention of the colon in locating the region of the tumor, of segregation of the urine in differentiation between the different tumors, and of analyzing the range of motion in movable tumors as of value in diagnosis.

98. **Oophorectomy for Functional Nervous Diseases.**—Brockman reports four cases of oöphorectomy in which he believes hysteria and insanity were relieved. He thinks the conservatism of alienists and neurologists in regard to this operation for such cases is not altogether justifiable.

103.—See abstract in THE JOURNAL of January 20, p. 166.

105. **Snow-Blindness.**—Mitchell describes a case of snow-blindness, and mentions the apparatus used in Alaska by the miners. He does not allow much value to colored glasses. The real remedy is a wooden goggle made somewhat after the plan of pinhole spectacles.

110. **Chloretone.**—This new drug is stated by Morton to have a decided value in ophthalmic practice, due to its antiseptic properties combined with its mild anesthetic action without affecting the pupil or accommodation. It is also free from undesirable properties of disturbing corneal epithelium like cocain, and another very decided advantage of it is as a preservative to other drugs, suprarenal extract for example, which has always had to be specially prepared, but which can be kept for some time with a small addition of chloretone.

123. **Lethargy and Trance.**—Madden discusses the subject of trance, and reproduces the literature of a number of interesting cases that have been reported. While many reported ones are apocryphal, there are some well-substantiated instances that show the danger of premature interment.

124. **Etiology of Acute Tonsillitis.**—According to Class, acute anginas may be thus classified according to their importance: 1. Those caused by the pneumococcus. 2. Those caused by the diphtheria bacillus. 3. Those caused by the streptococcus. 4. Those caused by the diplococcus scarlatinæ. 5. Those caused by the influenza bacillus. 6. Those caused by the staphylococcus pyogenes. 7. Mixed infections, two or more of the above germs being present in each case. These do not include absolutely all, as there may still be unidentified germs, and the anginas met with in measles and smallpox, which are probably due to specific contagion. Something like the pneumococcus zymogenes is sometimes found in throat cultures, which suggests a solution regarding the connection between anginas and the occasional subsequent endocarditis. Each of these forms is discussed separately, and the author urges giving more thought to the bacteriology of throat infections.

134. **Formic Aldehyde in Milk.**—Moechel is strongly in favor of the use of small quantities of formaldehyde as a milk preservative. His experiments were made on not only animals, but human beings, and therapeutic experiments on children. As a result he believes the proper percentage of formaldehyde should be allowed to be a benefit rather than deleterious in milk, and that it is much better than the process of pasteurization, which destroys the amylolytic property possessed by raw milk, modifies the butter fat and changes milk sugar into caramel. The reasons he gives for his opinion in favor of

formaldehyde are: "1. It does not interfere with the human gastric, intestinal or ptyalin digestion. 2. Infants that did not prosper with various kinds of infants' food and milks, also cows' milk prepared according to the best authorities,, at once changed for the better when supplied with milk treated with formaldehyde—and they continued to augment in weight and health. 3. An insignificant amount, 1 to 150,000, and not more than 1 in 50,000 preserved the milk from souring for a few days. Whether the same percentage destroys the bacteria or inhibits their growth will be shown by further investigations, now under way. Formaldehyde is the best milk preservative and does not introduce any mineral matter. These conclusions are preliminary, as our conclusions are not yet finished, but they are based upon strong facts, which we obtained from experiments made by us up to the present time. In order to prevent decomposition of milk, we regard it as entirely admissible to add formaldehyde (pure) in proper quantity after milking and not later, and therefore by the only permissible one, the dairyman." The proper percentage of formaldehyde seems to be about 1/80,000, according to the results of experiments in infant feeding reported to Moechel by Dr. F. W. Frœhling, who conducted this part of the investigation.

136. **Grant's Operation for Restoration of Lip.**—Wooten reports a case of Grant's cheiloplastic operation for restoration of the lip after excision for epithelioma. This consists of a square incision connected at the corners with oblique ones on the chin instead of the V-shaped incision. The advantages of the operation are, he claims: 1. The incisions are confined to the mobile, elastic portions of the lip and cheek, allowing dissections where necessary from the alveoli; the large, well nourished triangular flaps can be slid over the chin and make traction on the whole cheek and none on the chin. 2. There is less tension of the lip; it is more prominent and natural in consequence, therefore it is more flexible in use. 3. There is less necessity for resorting to accessory operations to restore size and shape of mouth, which is less apt to be disfigured by this operation than any other. 4. The removal of all submaxillary gland tissue can be easily accomplished by the continuations of the same oblique incisions over the rami of the jaw.

FOREIGN.

British Medical Journal, March 25.

The Lettsomian Lectures, Being Practical Observations on Cancer of the Breast. WM. BANKS.—In this second lecture Banks first notices the errors about heredity, which he previously discussed, and the very serious error in regard to pain. The presence of pain is usually associated with cancer, so that its absence generally means to the patient that there is no cancer. There are, unfortunately, few neoplasms in their beginnings less accompanied with pain. The old statement in regard to skin adhesions and nipple retraction, which is only necessarily present when it is situated under the nipple is an error. One of the most striking symptoms is what he calls a "pigskin" appearance, which appears on a portion of the skin when pinched between the finger and thumb, and consists in fine points due to a number of hair follicles caught and tucked down by the cancer. This he considers as certainly indicative of subjacent carcinoma. The conditions that simulate cancer are next noticed, chronic mastitis, fibroadenoma and small simple cysts. His method of examination is described. He never removes a breast without first cutting into the tumor, and he frequently uses a small exploring trocar and canula for diagnosis. He always examines a breast tumor in three positions, standing behind the patient and having her press against him, examining from the front and when the patient is in a dorsal position. He considers the first method of very great importance in examining for anything on the anterior surface of the trunk and neck. After noticing the occasional occurrence of insanity after operation on the breast, which has long been observed, Banks describes chronic interstitial mastitis at length, and its possible malignant transformation. He thinks that early diagnosis of cancer is the most important thing, and if in any case the evidence seems to make for nothing worse than chronic mastitis, he treats for that condition, but keeps the patient under close observation until all the induration has subsided. On the other hand, if there is any probability of cancer, he thinks extirpation of the breast justifiable and the diagnosis can be made certain at the operation by the passage of the knife through the tumor. As regards the proportion of cases in which there is transformation of mastitis into cancer cases, the statistics fail us. He does not believe that milk abscesses leave behind them induration which degenerates into carcinoma.

Vomiting: Some of its Surgical Aspects; Especially with Reference to a Feculent Vomit, Which is Sometimes Curative. WILLIAM H. BENNETT.—In this address, two classes of vomiting are considered: Those due to the anesthetic or to certain conditions of disease which necessarily lead to vomiting under any circumstances, whether operation be performed or not, and certain other cases hitherto unrecorded in which vomiting of a particular grave form as commonly understood, proves in the end to be curative. That connected with operation may be divided into that which is the result of an anesthetic and that which is caused by disease from which the patient suffers. When caused by anesthesia also it may be directly after the operation or may be deferred till some days or hours later. When it is due to disease it may be dangerous through septic infection of the lungs, portions of foul vomit being inspired into the air-passages, producing pneumonia. In this it is really not the anesthetic in the ordinary acceptance of the term that is the cause. He advises that we previously wash out the stomach, cleaning it of offensive material or half-digested food so as to prevent a possibility of a lung implication. This is also valuable in ordinary post-anesthetic vomiting. Usually this is not dangerous, but in some cases when it is deferred for hours or days it may be very serious. In these patients, if the stomach has not been emptied of vomit it is a good practice, if the condition of the patient will permit, to use the lavage. The second class of cases to which he refers are those in which feculent vomiting occurs in cases of apparent obstruction, and he reports several cases where this form of vomiting was followed by immediate relief. From careful consideration of the subject he concludes that: "1. Feculent or stercoraceous vomiting occurs more commonly than supposed in cases in which no mortal disease exists. The occurrence of feculent vomiting must of necessity be a grave symptom, but it is not always followed by death, even though nothing be done for the patient from a surgical point of view. 2. In certain cases the vomiting is curative, inasmuch as it empties the bowel and stomach of accumulated contents which for the time being are unable to find their way downward in the normal way. This view is supported by the fact that in such cases as I have narrated, a very copious and as it were final vomit immediately preceded the change of the patient from an apparently hopeless state to the commencement of recovery." If the abdominal distension continues, however, after the vomiting the case is still serious.

New Method of Performing Perineal Prostatectomy. P. J. FREYER.—The author describes a case in which he operated by first opening the urethra in front of the prostate, on the staff, and then making a crescentic incision about four inches long from the opening backward around the anus to the coccyx on the right side, carrying the dissection deep into the ischiorectal fossæ, the rectum being pulled inward by a broad retractor. The tumor was then passed out of the wound by the left forefinger being hooked around it in the bladder. The capsule of the prostate was incised and peeled off and the tumor, which involved the right lobe of the prostate, removed piecemeal by cutting forceps and curved scissors, only a thin layer being left to support the mucous membrane of the bladder and prostatic urethra. A soft rubber perineal tube was passed through the urethral opening into the bladder, and retained there by a suture. The large gaping wound was packed with iodoform gauze and the usual dressings applied. The recovery of the 59-year-old patient was good, and he was sitting up in about six weeks, and shortly after quite well. The tumor was of a fibroadenomatous type. The author sums up the advantages of this method, which consist chiefly of the ability to thoroughly examine the tumor and the avoidance of dangerous dissection as in Dittel's operation, and the guide

furnished by the finger in the bladder. It is only adapted to certain patients, not, for example, for those with enlarged middle lobe projecting into the vesical cavity, and in very fat patients the finger may not be long enough to reach into the bladder and hook the tumor.

The Lancet, March 24.

The Typhoid Bacillus and Typhoid Fever. P. HORTON-SMITH.—After first describing the typhoid bacillus and its characters, the author gives the values of the different tests, of which he considers the agglutination one, carried out in high dilutions, and Pfeiffer's test the most accurate, but the others are not to be neglected. They are long and tedious, but we know so little as yet of saprophytes that they are necessary. The author considers that there is no proof that the typhoid bacillus can multiply outside of the body, though with our increasing knowledge of the disease we can explain many outbreaks without such an assumption. He notices the toxins and their possibility of diffusion and distribution of the bacillus in the human organs. The following data seem to him assured; the typhoid bacillus must always be found in the stools at the early period of disease. It can always be demonstrated in Peyer's patches and the mesenteric glands. It does not, however, remain limited to this space, but very soon and in all cases passes into the blood, by means of which it is distributed to the most diverse organs; thus it can always be found in the spleen and liver. It gives rise to the typical eruptions of the skin and is almost always present in the marrow of the bones and in the bile. It is frequently present in the urine and is commonly found in the kidney; occasionally it may be detected in the lungs and sometimes in other organs. The old conception of typhoid as merely a disease of the alimentary tract can no longer be maintained; as it is we must look on it as a modified form of septicemia in which, however, there is a definite and local primary disease whence dissemination of the organism takes place.

Influence of Temperature of Liquid Air on Bacteria. ALLAN MACFADYEN.—This paper, which was read before the Royal Society, gives the results of experiments on the effects of liquid air on various bacteria, those of typhoid, diphtheria, cholera, etc. The experiments show that bacteria may be cooled down to —190 C. for a period of twenty hours without losing any of their vital powers. Further experiments are being carried on with these and other micro-organisms with liquid air for longer periods, and also with liquid hydrogen.

The Therapist (London), March 15.

Use of Local Hot Baths in Poisoned Wounds. DAVID FRASER.—The writer calls attention to a treatment of septic wounds with which he has had remarkable success. It consists in keeping the limb or wound in hot water, as hot as can be borne, for at least a couple of hours, three times a day, and poulticing in the meantime with linseed meal. He thinks this method thoroughly carried out and patiently persevered in will cut short the atack unless the inflammation has already passed the axillary or inguinal glands. He has never seen one of the virulent cases of blood-poisoning with serious constitutional effects since first trying this treatment.

Australasian Medical Gazette (Sydney, N. S. W.), February 20.

A Palmar Reflex. GEORGE E. RENNIE.—Rennie describes a reflex due to a traction of the palmaris brevis when pressure is made on the pisiform bone and on the ulnar nerve above the wrist. He thinks that this must be a true reflex, and since the nerve-supply of the palmaris is derived from the eighth cervical and first dorsal nerve roots it may possibly be of service in localizing lesions in the cord.

Presse Medicale (Paris), March 14.

Reduction of Size of Shoulders in Difficult Delivery. E. BONNAIRE.—Cleidotomy or supra-acromiotomy has never been practiced on a live child, but if the head has been delivered and the shoulders are inextricably caught, instead of feticidal tractions a resort to cleidotomy will enable the child to be born alive, with no injury except the incision of the skin, aponeurosis and bone. No vessels are affected and even the subclavicular muscle is intact. Bonnaire uses ordinary long scissors. After the perineum is pulled back as much as possible, the finger is inserted and the clavicle sought. It feels like a match lost in the soft parts if it is transverse or unless repeated maneuvers have pulled it out lengthwise. In the latter case cleidotomy is impossible and supra-acromiotomy is necessary. If the clavicle can be reached the scissors are inserted between two guiding fingers to the clavicle. The first stroke of the scissors slips usually on the rounded surface of the bone and merely cuts the soft parts. The second severs the periosteum and the handles of the scissors are then grasped in the palm and the bone cut. The other shoulder is then cut in the same way. By supra-acromiotomy Bonnaire means a partial embryotomy, which consists in severing wide the skin and muscles surmounting the shoulder, in such a way as to liberate the scapulo-clavicular attachment of the arm. This allows the bis-acromial diameter to pivot and pass the uterine or pelvic diaphragm which is holding the shoulders.

Semaine Medicale (Paris), March 14.

Traumatic Hernia. F. DE QUERVAIN.—The writer uses the expression *hernie de force*, and studies the subject from the accident insurance point of view. It is evidently unjust to make manufacturers or insurance companies responsible for a pathologic tendency on the part of a workman, a predisposition to hernia. Persons with this tendency should select an occupation less arduous than others. And in deciding the indemnity such a predisposition, if proved, should reduce the claim. The supreme authority in accident insurance in Germany, the *Reichsversicherungsamt*, recognizes the right of a subject with a traumatic hernia to an indemnity and does not consider it reduced by a predisposition. In Austria the same rule prevails, and also in Switzerland, but in the latter a predisposition reduces the amount of the indemnity. Some private companies refuse to allow an indemnity for traumatic hernia, while others grant it. It is very important, in examining a subject, to bear in mind that there must have been a more or less considerable effort or traumatism to have produced the hernia, also that true traumatic hernia is almost invariably accompanied by sudden, severe pain, and frequently by strangulation. The physician should also seek for indications of preceding predisposition and also of an old hernia. If the inguinal canal is large and especially if it has lost its oblique direction, a traumatic origin of the hernia is less probable. The size is also significant. Except in the rarest cases, a traumatic hernia is never larger than a lemon. The fact of irreducibility also speaks against a fresh traumatic origin, as it indicates old adhesions. Evidences that a pad has been worn should also be sought. A double traumatic hernia is almost unknown. The coexistence of ectopic testes also suggests a non-traumatic origin, as this is frequently accompanied not only by a predisposition but by a pronounced hernia. Other circumstances in favor of a gradual development of the hernia are advanced age of the subject, and the knowledge that he has been incapable of hard work in spite of a robust appearance. A predisposition to hernia is generally accompanied by flabby abdominal walls, with trilobed abdomen; sometimes there is a hernia point on the other side. A thin hernial sac without adhesions with the elements of the cord, nor thickening of the latter, is a point in favor of fresh traumatic hernia. The indemnity accorded in Germany is from 10 to 50 per cent. of the working capacity. In Switzerland a single sum is paid, ranging from 500 to 2000 francs. The article concludes with the expression of the writer's personal opinion that companies, etc., should accord the expenses of radical treatment as the minimum of indemnity in any case of traumatic hernia.

Centralblatt f. Chirurgie (Leipsic), March 24.

Operative Treatment of Neuralgia of the Trigeminus. A B. TICHONOWITCH.—The conclusions of this prize thesis are that resection of the Gasserian ganglion, according to Quenu and Sebileau, is much the best operation. The advantages are the lesser extent of resection of bone required, the harmless route to the foramen ovale between the bone and periosteum, the absence of large vessels in the field, the easy recognition of the tissues, the favorable conditions for the application of a ligature to the middle meningeal artery, which

can thus be well protected, the comparatively small size of the opening in the bone necessary for the exposure of the ganglion, and lastly, the protection of the defect in the bone by the numerous organs located behind the provisionally resected arcus zygomaticus, and the certainty of the consolidation of the arcus by the broad surface of the anterior incision of the resection. The Quenu and Sebileau method combines the advantages of the "temporal," and also of the "basal" method without their chief faults, and is therefore the method of election for resection of the Gasserian ganglion.

Deutsche Medicinische Wochenschrift (Leipsic), March 22.

Revision of Pharmacopeia Germanica. E. HARNACK.—The new drugs that have been added to the German pharmacopeia are already announced, twenty-five in all. The revising committee endeavored to avoid patented medicines and to rebaptize those already in the work. The list is: adeps lanæ anhydricus; adeps lanæ cum aqua (lanolin); ether pro narcosi; alcohol absolutus; arecolinum hydrobromicum; baryum chloratum; bismutum subgallicum; bromoformium; coffeinonatrium salicylicum; gelatina alba; hydrargyrum salicylicum; hydrastininum hydrochloricum; mel; methylsulfonalum (trional); oleum camphoratum forte; oleum chloroformii; oleum santali; pilulæ fer. carb. Blaudii; pyrazolonum phenyldimethylicum salicylicum (salipyrin); semen erucæ; serum antidiphtheriticum; tela depurata; tuberculinum Kochii; unguentum adipis lanæ; vinum chinæ. None of the new preparations of silver, of tannin, organic iodin, organic iron, of creosote, methylene blue, etc., are included in the list. Salol is rebaptized: phenylum salicylicum, and antipyrin, pyrazolonum phenyldimethylicum. Among the substances dropped from the pharmacopeia we note auro-natrium chloratum, the only preparation of gold; keratinum as a coating for pills (salol is recommended in its place), and thallinum sulfuricum.

Muenchener Medicinische Wochenschrift, March 13 and 20.

Distortion of Lower Joint of Foot. H. KRAPF.—The writer of this communication has had occasion to observe a number of cases in which the subjects had wrenched or sprained a foot some time before. As they recovered they found they could walk perfectly well on level ground, but there was a sensation of uncertainty on an uneven surface, and if they stepped on a pebble or anything of the kind, the pain was so intense that sometimes they fell. On examination, the talocalcaneal joint was found enlarged, or a small prominence in the talus region, or a displacement of the anterior talus angle; pronation and supination of the foot were almost if not entirely impossible, while dorsal and volar flexion and gait were normal. The cause is either a fracture or distortion of the lower joint of the foot and usually leads to ankylosis of the joint. Rest, massage and a special shoe will cure recent cases and improve all. Krapf urges investigation of the lateral movements in all cases of injury to the foot, and observes that the effects of distortion of the lower joint, while not impairing the working capacity in most occupations, proves a serious detriment in others.

Large Splinter in Eye Not Discovered for Year and a Half. PETERS.—A child of 8 fell and complained of pain in the eye, and for several days there were marked cerebral symptoms, but the physician found no foreign body in the eye. It suppurated and became blind. A year and a half later, as suppuration still continued, the child was taken to Peters, who extracted a splinter of wood over 3 cm. in length and 3 mm. wide. He believes that the sight might possibly have been saved if the splinter had been removed at once, and asks what would have been the results if the parents had sued the first physician for his neglect to find a splinter of such size in their child's eye.

Trial of Local Alcohol Therapeutics in Gynecology. L. SEITZ.—A series of cautious and thorough tests were made of local alcohol treatment in various gynecologic troubles, in the hope that the arterial hyperemia induced might assist Nature in the defensive reaction of the organism. Applied to the vagina, the effect was only beneficial in one case—chronic metritis and endometritis fungosa—while the erosions and shedding of the epithelium induced offer a favorable soil for infection of all kinds. A case of tuberculosis of the peritoneum and adnexa was also favorably affected by alcohol compresses applied to the abdomen after laparotomy to evacuate ascites, and this success warrants further attempts in this line. In other respects local alcohol treatment proved a failure in gynecologic affections.

Treatment of Lupus and Other Skin Diseases with the Roentgen Ray. ALBERS-SCHOENBURG AND HAHN.—The long experience of the writers at their Roentgen institute at Hamburg enables them to affirm that all skin diseases without exception are favorably influenced by the Roentgen ray, while, with proper precautions, there are no inconveniences from its use. It invariably cures the eczema accompanying lupus, and the indurations, and is peculiarly adapted for the treatment of flat surfaces and extensive areas. Recurrences are not prevented by this treatment any more than with other methods, and it does not exclude other treatment; in fact, is best applied in combination with other methods.

Simple Method of Determining the Bound Hydrochloric Acid in Gastric Juice. O. COHNHEIM.—The simplicity of this method adapts it to general clinical use. The contents of the stomach is filtered and the total acidity and proportion of free hydrochloric acid computed as usual, for each 10 cm. A similar amount—10 cm.—is then precipitated with calcium phospho-tungstate prepared by neutralizing a 4 per cent. aqueous solution of commercial phospho-tungstate with calcium carbonate at boiling point; 30 c.c. are sufficient. After waiting two to five minutes, filter and determine the acidity with resol acid or phenolphthalein. The difference between the amount thus obtained and the total acidity is the amount of bound acid. In the absence of free hydrochloric acid the deficit is determined and a certain amount is added, 30 to 40 c.c. more than the actual deficit, and this amount is subtracted from the amount of bound acid established. In the tabulated tests the total acidity varied from 27 to 95, with minus 78 free acid in the first case and plus 70 in the second. The amount of bound acid was 25 in each case. The total hydrochloric acid in the first was minus 53 and the second plus 95.

Gazzetta degli Ospedale (Milan), February 25.

Subconjunctival Injections of Sublimate in Ulcers of Cornea. F. AMATA.—An experience with forty-two cases of severe ulcers of the cornea has convinced Amata that this method of treatment far surpasses all others in simplicity and efficacy. A single injection was sufficient in all but one case. He uses Sgrosso's formula—corrosive sublimate, 5 cg.; sodium chlorid, 10 cg.; aq. dest., 100 gm.—after cocain.

Mercurial Neuritis. P. C. MODINOS.—A young man had rheumatic pains appearing three years after he had contracted syphilis and been effectively treated at the time. He returned to his mercury to dispel the pains, but found that they increased until walking was impossible. Modinos ascribed them to a mercurial neuritis and appropriate antimercurial treatment soon cured them. He also reports a similar case occurring eighteen years after the first syphilitic infection. He suggests that possibly this mercurial neuritis may occur comparatively frequently and be ascribed to other causes.

New Indications for Injections of Gelatin, and New Formula. V. PENSUTI.—The writer has been using injections of gelatin extensively in all hemorrhagic infections, and recommends them as harmless and marvellously effective in chronic cases that have resisted all other treatments. He describes one observation in detail, a young woman very much debilitated from several weeks of bloody dysentery, forty-five passages a day, all blood-stained. The blood ceased to appear in twenty-four hours after the first injection of .90 gelatin, and the discharges were reduced to normal number in three days. No other treatment was instituted except the daily injection of gelatin. Pensuti adds a few centigrams of phenic acid to each c.c. of the 30 per cent. gelatin; filters in steam and injects 3 c.c. once to three times a day in very severe cases. By this means he avoids the large amounts necessary when a more diluted fluid is used.

Alum in Lead Poisoning. G. CAMPANELLA.—In the failure of all other remedies Campanella administered alum, which at once conquered the rebellious constipation and cured the

patient. He explains the mechanism as due to the formation of a soluble alkaline sulphid by the combination of the alum with the albuminoids and free alkaline substances in the intestines, with the formation of sulphuric acid. These stimulated peristalsis and irritated the mucosa, producing hyperemia, which counteracted the anemia caused by the lead.

Experiments in Prophylaxis of Malaria on the Rome-Tivoli R. R. A. BALDI.—The houses of the railroad agents were rendered mosquito-proof, and netting masks, veils and gloves were provided the agents who had to be in the open air at night. Insecticide powders were burned in the rooms. The stretch of the road on which these precautions were taken was in a notoriously malarial region, and a corresponding stretch was left unprotected to serve as control. In the latter every person connected with the road and every member of their families was infected with malaria, terminating in cachexia in some. In the protected stretch all escaped except the station agents who had to be exposed to the night air. These results are considered very encouraging, as the scientists had to contend with ignorance and negligence on the part of the railroad employees, although the officers of the road afforded them every facility and appropriated a thousand lire to pay expenses.

Success of Nitrate of Silver in Acute Lobar Pneumonia. E. CACCIANIGA.—THE JOURNAL called attention to Caccianiga's treatment of pneumonia with nitrate of silver, when he first announced it in 1898. He has now an experience of 60 cases with 56 prompt recoveries, 1 slow one and 3 deaths. The drug seems to have a specific action on the pneumococcus, and restores the temperature to normal in twenty-four to forty-eight hours; the resolution of the pneumonic foci commences two to a few days after defervescence, and a sense of relief and general improvement accompanies or precedes the latter. He gives adults 25 to 30 cg. of nitrate of silver in pills of 2 to 5 cg. each, or in a mucilaginous vehicle, one pill or one tablespoon of the solution every hour. He repeats this prescription every day, increasing it if necessary until complete apyrexia and then continuing half the dose for two or three more days. In very severe cases he makes subcutaneous injections, and considers protargol the best preparation of silver for this purpose, injecting 15 cg. at a time in a 50 per cent. solution. He appeals to the profession at large to test this treatment of pneumonia and report results, confident of its efficacy.

Experimental Research in Regard to Toxicity of Serums, Exudates, Etc., in the Various Morbid Conditions and Under the Influence of Medicines. F. BADANO.—The heart of the tortoise, Emys Europea, was used for the tests, with Williams' apparatus to maintain artificial circulation. The chief results of the extensive research show that pleuritic effusions are very slightly toxic, a little more if from a febrile patient and still more if purulent, but peritoneal effusions showed no toxic action. Blood from patients with pneumonia arrested but did not kill the heart, whose functions could be restored by sending salt solution through it, but blood from subjects with pneumonia, who had been taking digitalis, was much less toxic. There did not seem to be any proportion between the amount of digitalis and its modifying action, and it did not prevent the arrest of the function at last. Blood from patients with erysipelas killed one heart; another was revived by salt solution after it had been arrested. Streptococcic toxin had a slightly toxic effect. Blood from subjects with severe malarial infection killed the hearts sooner or later in every case, and this effect was only retarded by half an hour when the subjects had been taking quinin. Blood from typhoid subjects was also fatal to the heart, and seemed most toxic during the second week of the disease. Phenacetin and antipyrin had no effect in diminishing the toxicity of the blood. Blood from subjects with pyemia soon exhausted the heart. Tuberculous blood had no special toxic action on the heart, but the blood in severe icterus and with cirrhosis of the liver showed marked toxicity, even when subjects felt comparatively well.

St. Petersburger Medicinische Wochenschrift, March 10 and 17.

Erythema Exsudativum Multiforme. H. LAU.—G. Lewin, who has treated over eighty thousand syphilitic patients, always urges his students to wait for the eruption before instituting specific treatment, as it frequently occurs that circumstances arise which render it impossible later to determine whether a subject has had syphilis or not. Lau relates a convincing instance: a man, 33 years of age, noticed five small sores on the prepuce, diagnosed by a physician as soft chancres and treated with specific medication. They soon healed, leaving indurations, and a year later a papulous eruption appeared, for which he took a regular course of treatment. This eruption recurred nine times in the course of six years, during which time the various courses of specific treatment had introduced about a pound of mercury into his system. At the end of this time Lau was consulted and demonstrated that the eruption was merely a cyclic erythema exsudativum multiforme, and if the subject had ever had syphilis at all, it had been cured long years before.

Septic Maculo-Papulous-Erythema Consecutive to Follicular Tonsillitis. K. DEHIO.—The acute follicular tonsillitis had evidently been the starting-point of a severe septic intoxication, with high fever, involvement of the central nervous system, digestive disturbances and a maculo-papulous eruption over nearly the entire body. A second observation is related in which the eruption recurred three times after an interval of two years. Dehio considers it probable that the specific, probably septic toxins causing the eruption encountered in these cases a certain predisposition or idiosyncrasy.

Societies.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Atlantic City, N. J., June 5-8.
Medical Association of Alabama, Montgomery, April 17.
South Carolina Medical Association, Charleston, April 18.
Louisiana State Medical Association, New Orleans, April 19-21.
Medical Association of Georgia, Atlanta, April 18.
Medical and Chirurgical Faculty of Maryland, Baltimore, April 24.
Texas Medical Association, Waco, April 24.
American Proctologic Society, Washington, D. C., May 2 and 3.
Illinois State Medical Society, Springfield, May 15-17.
Association of Military Surgeons of the United States, New York City, May 31 to June 2.
American Medico-Psychological Association, Richmond, Va., May 1.
American Association of Anatomists, Washington, D. C., May 1-3.
American Association of Genito-Urinary Surgeons, Washington, D. C., May 1-3.
American Laryngological Association, Washington, D. C., May 1-3.
American Surgical Association, Washington, D. C., May 1-3.
American Association of Physicians, Washington, D. C., May 1-3.
American Climatological Association, Washington, D. C., May 1-3.
American Dermatological Association, Washington, D. C., May 1-3.
American Orthopedic Association, Washington, D. C., May 1-3.
Arizona Medical Association, Prescott, May 2-3.
American Gynecological Association, Washington, D. C., May 4-6.
Medical Society of State of North Carolina, Torboro, May 5.
American Pediatric Association, Washington, D. C., May 7-9.
Ohio State Pediatric Society, Columbus, May 8.
Nebraska State Medical Society, Omaha, May 8-10.
Washington State Medical Society, Spokane, May 8-9.
Oklahoma Territory Medical Society, Oklahoma City, May 9.
Ohio State Medical Society, Columbus, May 9-11.
Kentucky State Medical Society, Georgetown, May 9-11.
Medical Association of State of Missouri, Mexico, May 15-17.
Medical Association of Montana, Butte, May 16.
Iowa State Medical Society, Des Moines, May 16-18.
Arkansas Medical Society, Jonesboro, May 14-16.
Connecticut State Medical Society, New Haven, May 23-24.
North Dakota State Medical Society, Grand Forks, May 23-24.

Indiana State Medical Society, Anderson, May 24-25.
New Hampshire Medical Society, Concord, May 31 and June 1.

New York Academy of Medicine.

Section on Medicine, March 20, 1900.

TREATMENT OF RHEUMATISM.

This was the general subject for the evening's discussion.

TREATMENT OF RHEUMATISM AT THE NEW YORK CITY HOSPITAL.

DR. HUGHES DAYTON, in his paper on this subject, said that the chief reliance is placed on sodium salicylate, given in doses of 10 or 15 grains every three hours until the pain is relieved. Where it seems advisable to push this drug in spite of the presence of such toxic symptoms as tinnitus, sodium bromid is added. In a few instances the salicylate has been administered per rectum, in doses of 30 grains dissolved in two ounces, but ordinarily, when the stomach proves intolerant of this drug, salol, 5 grains every three hours, is given instead. For local use methyl salicylate is useful. It is absorbed into the system through the unbroken skin, as is readily demonstrated by testing the urine half an hour after applying it to the affected part. The same local application is used in the cases of chronic rheumatism in this hospital, but internally alkalies and iodid are given. If there is much infiltration about the affected joints, the hot-air bath is employed, and if used for a considerable time, it reduces the swelling and increases the mobility of the joints. For muscular rheumatism salol and phenacetin, each 5 grains, are given every three hours, and methyl salicylate or belladonna plaster is used locally. Perhaps the most reliable local application is the thermocautery.

TREATMENT OF RHEUMATISM AT THE MOUNT SINAI HOSPITAL.

DR. L. A. S. BODINE read a paper on this topic. The method in vogue is to first thoroughly clear out the intestinal tract by a dose of calomel, followed by a saline cathartic, and then to administer the salicylate of soda in doses of 10 or 15 grains at intervals of three hours. If the salicylate causes gastric disturbance, tinnitus aurium or eruptions, the oil of wintergreen, or the citrate or acetate of potassium is substituted. Morphin is rarely given to relieve the pain, the main reliance in this disease being on such sedatives as phenacetin, acetanilid and antipyrin. Trional, either alone or combined with bromid of sodium, is the favorite hypnotic. Rest in bed and a fluid diet are insisted on during the acute stage, but after the temperature has remained at the normal for three or four days the patient is allowed to get up, and his dietary enlarged to embrace eggs, bread, potato, and fresh vegetables, but meat is still excluded. During convalescence, iron, strychnin, and quinin are administered. Locally, methyl salicylate is used, also tincture of iodin, and ice-bags, and attention is paid to the position of the limb. If these measures do not suffice to check the effusion, the joint is aspirated to determine the character of its contents. Hot-air baths for the affected parts, at a temperature of 200 to 400 F., have been used to some extent.

DIFFERENTIAL DIAGNOSIS OF CHRONIC RHEUMATISM.

DR. J. J. WALSH, in commenting on the differential diagnosis, divided the cases of rheumatism into four classes: 1. Subacute rheumatism, the attacks occurring rather frequently yet yielding readily to treatment. 2. Cases presenting the symptoms of articular rheumatism, and occurring especially in children, under the name of "growing pains," or alternating with chorea, tonsillitis, and certain skin affections. 3. True chronic rheumatism, where the joint is sometimes permanently injured and deformed. 4. A very large and motley array of cases often diagnosed as rheumatism, chiefly because of the presence of pain somewhat resembling that of true rheumatism. It is true that this pain is relieved by the remedies often employed in rheumatism, but as these drugs are usually the coal-products, which relieve pain in the peripheral nerves no matter what its nature or origin, this is no argument in favor of rheumatism. Incidentally the speaker said that anybody who ever experienced the soothing effect of the salicylates as a surgical dressing, or the great relief afforded in toothache arising from an abscess at the root could readily understand the relief of pain from the administration of such remedies. Another common mistake in diagnosis is to confound the pain of flat or weak foot with rheumatism. The error is made apparent by the relief afforded by simply placing a small pad of felt under the inner border of the foot to properly support the arch. A similar condition of pain in the foot was noted in some dentists; it had its origin in supporting the weight of the body for long periods of time on one foot while the other was engaged in running the dental engine. These occupation neuroses should be borne in mind, and the possibility of their presence in the given case carefully weighed before making the diagnosis of chronic rheumatism.

HOT-AIR TREATMENT OF CHRONIC RHEUMATISM.

DR. THOMAS E. SATTERTHWAITE said, on this subject, that in the modern apparatus used for this purpose the essential idea is to keep the body dry while the air about it is superheated. To this end, the limb is wrapped in two or three layers of blanketing or Turkish toweling, to prevent the scalding which will result if this provision is not made for the immediate absorption of the perspiration. The inner surface of the cylinder is lined with asbestos to prevent contact of the skin with the heated metal. If the toweling is not applied snugly about the limb some perspiration may lodge between it and the skin and so cause blistering. He could not endorse the extravagant claims made for this apparatus by some observers, but it could certainly be said to be an adjuvant to other methods. Dr. George L. Kessler, of Brooklyn, who had had an extensive experience with this method, felt warranted in drawing the following conclusions: 1. The treatment causes contraction and then dilatation of the superficial blood-vessels. 2. The pulse becomes stronger but beats more rapidly. 3. The bodily temperature is raised from one to six degrees. 4. This is associated with profuse and acid perspiration. 5. The respirations are increased in frequency. 6. If the treatment is too prolonged, nerve exhaustion will be experienced.

DR. H. W. GIBNEY detailed a number of cases in which he had used this portable hot-air apparatus with more or less success.

USE OF ELECTRICITY IN CHRONIC RHEUMATISM.

DR. WILLIAM JAMES MORTON, in his paper on this subject, considered the effect of the high potential high frequency current in general, and that of his so-called "electric wave current" in particular. When using this wave current, he said, the patient practically becomes one coating of a Leyden jar, and is therefore subjected to a very powerful but not unpleasant condenser current. By means of dry, uncovered electrodes of some pliable material, such as block tin, this current can be readily applied to the joints or various other regions of the body—indeed, by making use of the metallic military cloth, used in decorating soldiers' uniforms, one can readily and quickly cut out rude garments, and apply the current generally as well as locally. The application should be kept up for from fifteen to thirty minutes, but if the patient feels exhausted afterward it is an indication that the treatment has been too prolonged. In subacute and chronic rheumatism he first advises a general treatment as just described, followed by a local one with sparks. This electric method powerfully influences all the nutritional processes, and is greatly superior to the hot-air treatment or to any other method he has tried. It is particularly useful in cases of gout, and where there is only a watery edema, the relief at once afforded by the application is apt to be permanent. Skiagraphs were exhibited to show the good results obtained from this treatment in cases of rheumatoid arthritis, and the assertion was made that the progress of rheumatoid arthritis can be arrested in any stage, the result being secured more slowly in proportion as the disease is more advanced before coming under treatment.

DR. WILLIAM M. LESZYNSKY said that while he had had even brilliant results from the use of the static electric machine in the treatment of muscular rheumatism, he had not achieved such signal success when he had employed this method in cases of chronic articular rheumatism. One reason the electric treatment is commented on adversely by so many physicians is that they have not made sufficiently long applications of the current. One method of the treatment which he

has found very useful is the wet pack. By the use of this at night, and massage and oil of wintergreen by day, joints stiffened by rheumatism can be improved in a comparatively short time.

DR. MORRIS MANGES spoke against the prevailing tendency in some quarters, to believe that we are in possession of any specific treatment for rheumatism, and added that to treat this disease solely by the use of the salicylates is a serious error. Patients so treated will have many complications, and recover slowly. The urine should be carefully watched to determine the quantity of alkali needed. The urine should be made alkaline, and kept so. The best results will be secured by combining a pronounced alkaline treatment with a moderate salicylate one, and by giving due attention to the heart and to immobilization of the affected joints. He knew of one or two instances in which the chilling of the parts after their removal from the hot-air apparatus led to a subacute case again becoming acute. The hot-air treatment is also not wholly free from other dangers, such as fire and burns.

DR. MARY PUTNAM JACOBI said that she had had an opportunity of witnessing the treatment of rheumatoid arthritis by means of the electric wave current, and had been favorably impressed with the method.

DR. G. L. KESSLER said that he had treated 350 cases of rheumatism in the Sprague hot-air apparatus, and had found it capable of increasing the mobility and reducing the deformity in most cases. In those in whom the joints have become suddenly stiff he has used lactic acid with gratifying success, though it must be confessed empirically. This medication, together with the hot-air treatment, should be kept up for several months. The temperature of this apparatus can not be safely allowed to run up above 350 F., as indicated by the thermometer in the top of the apparatus. He is opposed to the splinting of rheumatic joints, believing that this simply encourages the stiffening of these parts.

Section on Laryngology and Rhinology, March 28, 1900.

CHRONIC ATROPHIC RHINITIS.

DR. FRANCKE H. BOSWORTH opened the special subject for discussion by a consideration of the etiology. He says that atrophic rhinitis is only a development from the purulent rhinitis of childhood, and that there is not a single case on record which justifies the assertion that atrophic rhinitis ever follows hypertrophy. Children are well known to be susceptible to catarrhal inflammation, and the result of such a process is, at first, increased secretion. The process gradually extends into the glandular structures, and the secretion becomes inspissated, and finally dried into crusts which by pressure, interfere with the vascular supply of the mucous membrane; and as they are not easily expelled, they decompose, and cause the stench so characteristic of this class of cases.

DR. JONATHAN WRIGHT reviewed the more recent contributions to the etiology and pathology, particularly certain anthropometric studies, which point especially to two factors as prominent in the etiology of atrophic rhinitis, viz.: 1, epithelial metamorphosis of the nasal mucous membrane; and 2, the presence of wide nasal fossæ. Some authorities are of the opinion that the short septum has a direct bearing on the occurrence of ozena. Gerber maintains that the flat nose type is more common in women, and asserts that 71 per cent. of the cases of atrophic rhinitis occur in females.

DR. CLARENCE C. RICE discussed " the importance of distinguishing functional collapse of the nasal tissues from atrophic rhinitis," and said that in the simple dry rhinitis of the anemic the nasal mucous membrane is smooth and presents all shades of pallor, while in atrophic rhinitis the color of the membrane varies from a red to a dirty gray. Perhaps the most important distinguishing feature is the amount of secretion. In cases of functional collapse, there is comparatively little; in atrophic rhinitis there is usually an abundant accumulation of pus and crusts. Again, in atrophic rhinitis the degree of dryness varies greatly from time to time, while in functional collapse, although the dryness is never so great as in atrophic rhinitis, the mucous membrane is never moist. Hyperplasia of the middle turbinate is more marked in atrophic rhinitis than in functional collapse.

DR. THOMAS R. FRENCH, in speaking of the treatment, said that while oily sprays give temporary relief, their use is inadvisable as they tend to aggravate the disease by still further interfering with the glandular action. For local treatment, he prefers the spray, both before and after an application of hydrogen peroxid. Most of these patients require daily cool baths, life in the open air and other general tonic measures.

DR. D. BRYSON DELAVAN, in discussing "the mechanical and electrical treatment," deprecated any extensive removal of the mucous membrane in most cases. Gottstein's treatment by means of tampons is chiefly indicated in patients in whom there are localized areas of tissue partly hypertrophic and partly atrophic. Either the galvanic or the faradic current, frequently interrupted, could be used in the treatment of atrophic rhinitis, but this method was both tedious and expensive.

DR. CHARLES H. KNIGHT discussed "the treatment by drugs." For local cleansing he knows of nothing superior to a normal saline solution made by dissolving one teaspoonful of common table salt in a pint of water. For use in spray apparatus it is superfluous to previously warm the solutions, as it has been conclusively demonstrated that the temperature of the solution falls materially almost immediately on leaving the nozzle of the apparatus. There can be no doubt concerning the beneficial action of menthol when used locally. It improves the character of the secretions, and reduces their quantity. To begin with the strength should not exceed five grains of menthol to the ounce of fluid albolene, but after the patient has become accustomed to this, the strength can be increased with advantage. Formaldehyde would seem theoretically to be an ideal medicament in atrophic rhinitis when used in an atomizer in the strength of 1 in 5000. However, some persons will not allow it to be used for any length of time because of the pain attendant on the application. A 5 per cent. solution of ichthyol in petroleum is exceedingly useful, but its unpleasant odor is a drawback.

DR. COYLE, of Hornellsville, remarked that he had had greater success in the treatment of this affection from the use of gauze tampons in the nose than from any other method.

DR. WOLF FREUDENTHAL expressed the opinion, based on considerable observation and experimentation, that much of the atrophic rhinitis now so prevalent is to be explained by the dryness of the air in most living rooms. For comfort and health there should be 60 per cent. of relative humidity, and certainly not less than 40 per cent., yet he has often known it to be as low as 30 per cent., and sometimes even as low as 15 per cent. This compels the mucous membrane of the upper air-passages to do an excessive amount of work, and quickly leads to diseased conditions.

DR. BEAMAN DOUGLAS said that a most useful local application in atrophic rhinitis is a 50 per cent. solution of ichthyol, as this substance, when applied to the mucous membrane, causes a serous exudation and an absorption of leucocytic infiltration. Another method which gives promise of usefulness is the carbonic acid gas treatment advocated by Dr. Achilles Rose.

DR. WENDELL C. PHILLIPS expressed the opinion that a 25 or 50 per cent. solution of ichthyol makes the best application, but insisted that to attain the best results the patient should be carefully instructed in the best method of cleansing the vault of the pharynx as well as the nasal passages. This part is very unpleasant, and it is difficult to get some persons to do it at all, yet it is a measure which should not be neglected.

Chicago Academy of Medicine.

March 9, 1900.

CASE OF FUNCTIONAL TREMOR OF THE ARM.

DR. HAROLD N. MOYER reported this condition in a man 47 years of age. This is the second attack of the tremor noted in his right arm. The first began about ten years ago. His health previous to that time was always good and there was apparently no cause for the attack. As he was going home from work, his arm suddenly began to shake, but less than it does now. He confined himself to the house for a month and

then returned to his work somewhat improved. At the end of the year the tremor had practically ceased, excepting for certain "reminders of it," he says. He was able to go on with his work, using his hand in all the ordinary occupations as well as before, but now and then there was a suggestion of the tremor, disappearing as suddenly as it came. Six weeks ago, while he was eating his dinner, the arm suddenly began to shake and has been shaking ever since. He has perfect coordination; the reflexes are intact; the eye-grounds and pupils are normal; there are no sensory disturbances. The muscles in this arm are well-developed and in fact, larger than those in the other arm, presumably due to the very great exercise which these muscles have. When stripped, he presents no tremor of any other member or muscle excepting those of the right arm and forearm, but Dr. Moyer was not quite certain that there is no tremor in the shoulder muscle. There is some jerking in the pectoral muscle, none in the head muscles nor in those of the other side. The jerking of the arm jerks his whole body. The tremor disappears during sleep.

The case is a very interesting one from the standpoint of diagnosis. Dr. Moyer does not believe it is paralysis agitans nor a case of sclerosis, and would hardly class it with chorea, yet there is perhaps more suggestion of the latter than any other kind of tremor. He can use his arm to some extent. The vibrations are about 280 per minute.

DR. HUGH T. PATRICK—I would like to ask whether the patient has been intoxicated recently?

DR. MOYER—He has not.

DR. PATRICK—I venture to predict that if he got drunk the tremor would stop. It would probably also disappear in a fit of anger. I had a similar case in which the shaking stopped and the eyes were closed.

DR. J. G. KIERNAN—I have had, some time ago, a case somewhat similar to this with the exception that tremor involved not merely the arm, but the speech center and the leg center as well. It was a case in a 15-year-old negro, and began with a peculiar stammer. The more attention was directed to the symptoms the more violent they became. While the age in this case differs—the age also would lead to the inference that there was an organic rather than a biochemical lesion—still the results obtained by Dr. Patrick and also the use of conium and camphor monobromate, which seems to exercise a beneficial effect, would make these cases somewhat alike. The boy has certainly gotten rid of the tremor, and speech disturbance, except under some very decided excitement.

In dealing with these cases, not merely the ordinary biochemical explanation, but the hysteric or neurasthenic as well, should be taken into account. In the case of the young negro the neurasthenic element alone could be excluded. In his case stammering was the last symptom to disappear.

Conium is undoubtedly a motor sedative. I have seen a similar tremor occurring in a 70-year-old woman, who was sent to me from Texas ten years ago. She had been given opium in enormous doses, and became an opium eater at the age of 65. That tremor turned out to be precisely the same as in the case of the boy. It disappeared completely under the rest treatment of opium disease, and the use of conium. I might add that two years afterward it recurred under "Christian Science." As far as I can learn from what Dr. Moyer has said anent his case, the condition is rather a biochemical one; to me it seems that it would be advisable to try the treatment indicated by Dr. Patrick, and also try conium in large doses.

DR. W. X. SUDDUTH—Several have suggested that I undertake to control this tremor, the patient being present. There is no doubt that it can be controlled by suggestion, as it is an involuntary action. The man, however, is not in a frame of mind to be made a clinic of at the present time, and that makes handling of the case rather difficult. Sedative drugs would have a beneficial effect in this case as it is the man's good right arm, the one with which he makes his living. The tremor has developed a suggestion in his mind so firmly that it requires a good countersuggestion to relieve it. The treatment of rest cure, suggested by Dr. Kiernan, is a good one, but it must be accompanied by diversion in order to take the patient's mind from his affliction. Any line of treatment which will divert his attention from the tremor will cure the case.

DR. HUGH T. PATRICK—I would like to ask Dr. Moyer whether he inquired closely into the emotional condition of the patient prior to his first attack.

DR. MOYER—So far as I can learn it was normal. He distinctly remembers the onset of the trouble ten years ago; the shaking began suddenly while he was on his way home from work. The second attack came on equally as suddenly while he was at the dinner table.

DR. PATRICK—There is nearly always some emotional disturbance in relation with the first shock. It may not be immediately preceding the attack but relatively near it. I remember two cases very much like this one, one in a boy in whom the shaking stopped immediately when the eyes were closed, the other a case of amputation just above the ankle. The latter had in the stump, exactly the same tremor or jerking which the patient has, but it did not persist constantly, and was relieved by placing the limb in a certain position.

This patient has probably discovered, consciously or unconsciously, some way in which he can partially control this tremor. I have watched him closely and it seems to me that sometimes the tremor subsided almost entirely. When he removed his overcoat and in so doing put his arm behind his back the tremor subsided entirely, and when the arm was drawn from the sleeve it began again. I think there can be no question as to this being other than a purely functional affair. I would not like to call it a biochemical lesion, as Dr. Kiernan suggests, because I do not know what that means. Brissaud called another set of muscular spasms "mental torticollis," indicating not only its functional but furthermore its psychic nature. The name was well chosen. I believe this case to be similar in origin, and I can see no reason why it should not be perfectly curable.

DR. WILLIAM J. BUTLER—We will all agree on the diagnosis which Dr. Moyer will make, namely, that the condition is functional, i. e., a tremor neurosis. I wish to call attention to a number of cases of tremor neurosis reported by Kraft-Ebing, in 1898, in the *Wiener Klin. Woch.*, and to which this case seems analogous. As a result of his observations he noted occurrence most frequently in young girls, though in one case, at the age of 41 years. The patients, were, as a rule, of a low order of intelligence and very emotional. The tremor was usually ushered in by a psychic or mechanical trauma. It frequently started in an arm or arm and leg, and extended later to involve the other extremities and head, producing a clinical picture simulating paralysis agitans. The tremor was always increased by intentional movements or excitement and in one case could be increased or diminished by suggestion. All the patients lacked bodily stigmata of hysteria, except in one in whom painful pressure points were observed on the back.

The various methods of treatment resorted to—hypnotism, magnetism, electricity, sedation, etc.—proved valueless during the time under observation, in all cases, except that of a young girl whose tremor came on only during the recumbent or sitting position and disappeared on standing erect. She presented painful pressure points on the back, and pressure on them resulted in diminution of the intensity of the tremor. vigorous faradization of these areas resulted in disappearance of tremor.

DR. H. N. MOYER (closing the discussion)—I have refrained from making a diagnosis and I think my confrères have been equally wise. I had expected to hear the word hysteria used, but it was not. To say it is a functional affair is wise. The term "hysteria" has been abused for a long time, and I am not inclined to group under that head things which are not clear to me nor things which we do not consider as organic. That is bad neurology. As this man presents no evidence of hysteria I will not make that diagnosis. I agree that the case is functional. I have noticed, as Dr. Patrick did, that on voluntary movement, especially if of an automatic character, there is partial cessation of the tremor, even if momentary.

The case is an interesting one and it certainly is rare. I have seen but three in twenty years. The first one was in a young girl who had the same tremor confined to the pronators of the forearm. I carefully studied it. The case was reported in THE JOURNAL nearly fifteen years ago. The re-

was 450 per minute, the fastest I have ever seen. Another one was in a woman and was undoubtedly hysteric. She presented the identical appearance that this man does. The ultimate result of treatment in the first case was absolutely *nil*. Suggestions and other means were unavailing. The young woman recovered after more than a year, without treatment. I do not know the result in the second case.

I have tried hyoscyamus in large doses in this man, without any effect on the tremor, and I believe that the relief lies, as Dr. Sudduth says, along the line of suggestion. If Dr. Sudduth, who is more skilled in applying suggestions, which in my hands is a very discouraging procedure, is willing to try it on this man I will be very glad indeed to put him in his charge and see what he can do for him.

San Francisco Society of Eye, Ear, Nose and Throat Surgeons.

March Meeting.

WHITE OPTIC ATROPHY IN TABES.

Dr. Geo. W. Merritt presented two tabetic patients with white optic atrophy, as illustrating that the atrophy of spinal disease is not always of the gray variety.

INJURIES TO THE EYE.

Dr. Geo. H. Powers presented a boy who, some time ago, was struck on the left eye by a ball, causing traumatic cataract. Several needlings were done and some vision recovered, but a rather dense membrane remains. The plane of the iris is far back, making the anterior chamber excessively deep, and a peculiar, spongy, black substance occupies the whole periphery of the anterior chamber.

Dr. Powers also presented a man who, five days before, was injured by a bit of steel from a chisel, which had penetrated the cornea, iris and lens near their superior periphery. The iris was torn away at its upper periphery. The lens when first seen was swollen and opaque. Two days later Dr. Powers took the patient to Dr. Pischel, who used his giant magnet. A "pulling" was felt when the circuit was closed, and a piece of steel weighing six grains jumped suddenly to the pole. There was no reaction and is now perception of light with ability to tell the direction of hand shadows.

Dr. Powers' third patient, a young railroad employee in good health, was attacked with a sudden feeling of apprehension of impending calamity so that he could not work. Two physicians who attended him thought there was cerebral lesion. In the meantime the patient discovered, on unintentionally covering his left eye, that the right one was blind, and this frightened him to the verge of collapse. Tension of the blind eye was normal, with posterior synechiæ, opacity of the lens, and evidences of suppuration. Dr. Powers asked an expression of opinions as to whether there is any connection between the mental condition and that of the eye, and as to the advisability of removing the blind one.

Dr. W. F. Southard presented a man showing the extensive ravages of tertiary syphilis. The right eye was deviated far upward and outward, part of the palate lost, and the vertebræ exposed. There was a fair vision in the right eye.

Dr. R. W. Payne presented a rare case of corneal disease, in a man of about 50, who had worked for many years in a smelter, being exposed to very irritating fumes. There was no specific nor rheumatic history. On the cornea were elevations in islands, between which were clear, transparent spaces. The elevations appeared to be epithelial. Peritomy and curetting had improved the condition.

Dr. W. F. Southward said he had seen a similar case in a child, with Dr. Schloss. The cornea was nearly covered with elevated opacities similar to those in Dr. Payne's case. He had shaved off a bit of the growth, and the microscope showed it to be epithelium. Nothing similar is described in the text-books.

DEMONSTRATION OF TESTS FOR MUSCULAR ANOMALIES.

Dr. F. B. Eaton limited his demonstration mainly to the tests for what is variously termed suppressed squint (Maddox), heterophoria (Stevens), and superable squint (Duane). All deviations are properly strabismic, the difference between strabismus and heterophoria being one of degree, not nature. Strabismus can be conveniently defined as the habitual absence of binocular vision, and it is important to determine when this is the case. Most of the tests are familiar, and only those were dwelt on which are misunderstood or neglected. To insure economy of time, and accuracy, some form of optometer must replace the trial frame, and one was shown which he has devised, after the one of Dr. S. D. Risley, Philadelphia, and which insures proper centering and levelling of lenses and double rotary prisms; it is fixed to the chair, and renders the examination more rapid, exact, and less fatiguing to examiner and patient. The ultimate muscular condition should be found after careful correction of the refraction, but at the first consultation a certain routine of muscular tests is necessary to avoid error in prognosis, and misunderstandings. Dr. Eaton makes the tests in the following order:

Inspection.—In addition to the ordinary observation of the movements when the eye follows a pen point, etc., attention was drawn to the value of the ophthalmoscopic corneal reflection as an objective test of deviation, first introduced by Priestly Smith. The patient fixes the hole in the mirror at nine inches, and the reflections are referred to the cornea, not to the pupil. This method is of particular value with infants, the light being thrown *rapidly* from one eye to the other.

Colored Glasses.—This test is familiar. Dr. Eaton has found that diplopia can be produced in all persons, provided the color is deep enough. When the diplopia is thus difficult of production, he has found esophoria for distance almost invariably present. Stevens has stated that 1 degree of hyperphoria by a red glass indicated habitual diplopia as also 1 or 2 degrees of esophoria or exophoria, but Dr. Eaton has found notable exceptions to the contrary.

Screen.—The screen or cover test is well known. It should be used in different parts of the field, both for the near as well as for distance.

Parallax.—This test is generally made too rapidly.

Maddox Rod.—The light should be small, with a background of black velvet. The tangent scale for both distance and near is the best method of using. For distance, esophoria of over 10 degrees and exophoria over 8 or 10 degrees by the rod generally indicates habitual loss of binocular vision. For the near, Dr. Eaton has found the Edw. Jackson rod with Maddox' small tangent scale the best. A clear black line is formed by the cylinder that acts as a rod, out of the black head of the arrow of the scale.

Prisms.—In spite of its convenience, the Stevens phorometer is far less sensitive and accurate than the Maddox rod. This has also been the experience of Dr. Hubbell of Buffalo, N. Y., who has shown that its findings, at least for distance, are unreliable. Both the rod and phorometer findings are modified by the range of accommodation, by spasm of accommodation from atropin and intense light. Stevens states that with his phorometer, hyperphoria of over 4 degrees and lateral heterophoria of over 8, indicate habitual absence of binocular fixation.

Prism Abduction.—Double rotary prisms, one before each eye, turned on simultaneously, give the abduction with absolute accuracy. Noyes and Valk prefer square prisms. For the near, abduction of 16 to 20 degrees may be taken as normal. With good health, an abduction of only 4 degrees at 20 feet can exist without asthenopia.

Prism Abduction.—At 20 feet, 20 degrees on to any amount may be considered normal; for near, 30 to 40. The dictum of Risley, that for distance the ratio of adduction to abduction is normally 3 to 1, has been found by Dr. Eaton to be a good working rule.

Convergence Near-Point.—This should be measured in meter-angles, the normal being, according to Landolt, 9½ meter-angles on an average, or 4⅛ inches from the eyes. According to Duane, it is 2 inches, and he considers 1 inch abnormal. For an average interocular distance, 7 degrees of prism (refracting angle) equals one meter-angle. Error will occur unless with presbyopia, the patient is given lens correction for four inches. The length of time the subject can *hold* convergence for near is to be observed.

Monocular Field of Fixation.—This is taking its place as an important test in asthenopia. There is disagreement as to the normal bounds, and Stevens is at variance with all other observers. The method is of value in determining the muscle or muscles at fault in old cases of paresis with contraction of other muscles and consequent concomitancy. Also, before operating, to indicate whether tenotomy or advancement is indicated, etc.

DR. V. H. HULEN, on beginning his demonstration, stated that he would give the tests as he himself used them and not as others had. He first inspects the face and skull as to possible asymmetry. He has not found muscular troubles at all connected with asymmetry. One muscular test will show abnormality, another none, hence we should employ a number of them. He has found the Maddox rod test more accurate and searching than the Stevens phorometer, nevertheless the latter instrument has given him great satisfaction, owing to its great convenience.

Stevens' Stenopaic Lens.—This piece of apparatus Dr. Hulen has found very useful. It is the only test he is acquainted with that gives, at once, all the deviations, vertical and horizontal. He rarely prescribes prisms, since they weaken the muscles, and we have to increase their strength. He has watched Dr. Noyes, and found his method of using square prisms the best.

He demonstrated Dr. Noyes' holder, consisting of a central stem 20 inches long, graduated in inches, centimeters and meter-angles, on which is a slider carrying test-cards, and carrying three cells before each eye, in which corrective glasses and square prisms can be used. This apparatus is also useful in determining the presence of spasm of the accommodation. He also demonstrated a small trial box he had made to hold lenses and square prisms, and which he used on the arm of the Stevens phorometer. The Stevens tropometer was then demonstrated. Dr. Hulen believes this to be the best instrument for measuring ocular rotations.

New York County Medical Association.

New York City, March 19, 1900.

REPORT OF A SUCCESSFUL CASE OF EXCISION OF THE CECUM WITH END-TO-END ANASTOMOSIS.

DR. FREDERICK HOLME WIGGIN reported this case, the report appearing elsewhere in this week's JOURNAL.

SYMPOSIUM ON SERUM THERAPY.

DR. E. K. DUNHAM opened the general discussion, and was followed by Dr. E. A. de Schweinitz, chief of the Biochemic Division, Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C., on "Tuberculins and Their Use." Dr. Alexander Lambert read a paper on "Antipneumococcus Serum," followed by Dr. W. H. Park, on "Diphtheria Antitoxic Serum. Dr. Charles B. Fitzpatrick then presented a paper on "Yellow Fever Antitoxic Serum," giving the results of some work done at the quarantine station. This was followed by one on "Antitoxic Serum," by Dr. R. J. Wilson, and one on "Antistreptococcus Serum," by Dr. H. Lilienthal. Dr. Wm. B. Coley presented a paper on "Serum Containing Mixtures of the Toxins of Erysipelas and Bacillus Prodigiosus." The above papers are printed elsewhere in this week's JOURNAL.

DR. WILLIAM H. WELCH, of the Johns Hopkins University, being unable to be present, sent a communication on "Typhoid Serum," in which he outlined his views. He does not think there is at present any satisfactory clinical evidence of the beneficial effect of serumtherapy in typhoid fever, though there is a sufficient experimental basis to justify, under proper conditions, the use of the vaccin as a prophylactic agent.

DR. W. TRAVIS GIBB, in speaking of the value of diphtheria antitoxin, mentioned a series of 19 fully developed cases of diphtheria that he had treated in this way, in some of which there had been instructive contrasts in the same households between the results of this treatment and of the older methods. He found that the temperature was usually decidedly reduced soon after using the antitoxin, and that it was kept in check. He never noted any unpleasant constitutional symptoms follow the injections.

DR. S. A. KNOPF, speaking of the treatment of pulmonary tuberculosis with tuberculin, commented on the complexity of the problem, and the well-nigh impossible task of differentiating between the legitimate effects of such special treatment and those effects dependent on other means simultaneously employed, for, he took it for granted that the conscientious physician would not feel justified in treating any case solely with tuberculin, neglecting other and well-known measures for the management of consumption. He has tried the antistreptococcus serum in a few cases, but the results have not been encouraging, and he has discarded it.

The Kings County Medical Association.

Brooklyn, New York, March 13, 1900.

(Continued from page 877.)

The advantages of this method are to be found in the rapid action, the absence of unpleasant odor, the absence of excitement and struggling, and the comparative freedom from unpleasant after-effects, and the great safety of the method. The speaker's own experience leads him to believe that unless very skilfully administered, the administration of gas alone, or of gas and oxygen is more dangerous than either ether or chloroform. The disadvantages are the rapid changes in the stages of narcosis, the great difficulty in administering it properly, the cumbersomeness of the apparatus, and its expensiveness. As a rule, the anesthesia is not deep enough for operations on the abdomen or rectum, and a small proportion of persons can not be satisfactorily anesthetized in this way. The method is especially adapted to patients to whom it is especially dangerous to give ether and chloroform, e. g. aged persons, or those greatly debilitated, or having serious organic disease of the heart, lungs, or kidneys. He has seen no fatalities from this anesthetic, but on two or three occasions witnessed an alarming degree of asphyxia.

DR. E. R. SQUIBB said that in 1871 he read a paper on anesthesia before the Medical Society of the State of New York, and presented a simple apparatus which at that time was a novelty. It represented one of the earliest efforts to use a bag in connection with the ether inhaler. The apparatus consisted of a long muslin bag, having a narrowed central portion containing a sponge moistened with ether. The upper flaring portion constituted the face mask, and the lower part the bag into which the patient breathed. The bag was moistened when in use, in order to make it less pervious. The administration was commenced by placing about 10 cm. in a tumbler and holding it under the patient's nose until the mucous membrane had become anesthetized with this mild ether vapor. In this way anesthesia could be induced with very little trouble, and with a comparatively small quantity of the anesthetic. The objection made to the apparatus was that carbonic acid was breathed over and over again, as was also the ether vapor. For this reason the apparatus gradually went out of use, its place having been taken by Lente's inhaler.

Dr. Squibb then spoke of the preparation of anesthetic ether. He said that under the best management there would be collected 96 per cent. of absolute ether and 4 per cent. of alcohol. This inseparable alcohol is a very definite proportion. Anesthetic ether is distinct from the commercial ethers, of which there are two varieties. One of these contains 87 per cent. of ether, and the other, or lower grade, about 75 per cent. In order that the alcohol should act properly as an anesthetic agent it should be 96 per cent. ether. The strength of ether is defined in the U. S. Pharmacopeia by the specific gravity, but ether being a very volatile liquid it is exceedingly difficult to determine its specific gravity accurately. There is a variation within the pharmacopeial limit of 2.3 per cent. A difference of 1 degree C. would make a difference of 1 per cent. in the strength of the ether, and the specific gravity could only be accurately determined by the use of a specially devised specific gravity bottle. The errors arising from these sources would be sufficient to make a difference of 3 per cent. in the strength. All alcohol contains slight impurities which lead

to the existence of certain odorous hydrocarbons in ether. Their presence is detected by dropping the ether on clean bibulous paper, and noting the odor as the ether evaporates. The odor of these hydrocarbons is analogous to the smell of a drunkard's breath when he is recovering from a spree. In his opinion the small traces of these hydrocarbons found in ether are often responsible for much of the nausea and vomiting following etherization. He feels positive that the surgeon who uses the cleanest ether will have the least vomiting among his patients. Ether having a specific gravity of .726 is a clean ether, while one having a specific gravity of .728—the pharmacopeial limit—*may* be an unclean ether.

DR. J. C. BIERWIRTH said he had had the good fortune to have Dr. Bennett give gas and ether to some of his patients, and felt enthusiastic regarding the excellent results obtained. For example, in a woman of 74 years, suffering from malignant disease of the abdomen, both the induction of the anesthesia and the coming out of it were agreeable almost beyond conception. The method is peculiarly serviceable in anesthetizing children, as struggling and excitement are completely avoided. In one case in which nitrous oxid and oxygen was used, the anesthesia was like natural sleep, while in the case of a very neurotic individual the method proved an absolute failure. He has observed very little nausea and vomiting after gas and ether anesthesia. The inhaler devised by Dr. Bennett is an exceedingly simple and cleanly apparatus, and reduces to the minimum the quantity of ether consumed by the patient, he said, and he had used Dr. Squibb's muslin bag arrangement for a number of years, and found it quite satisfactory. At a recent meeting of the New York County Medical Association, Dr. R. H. M. Dawbarn made the assertion that Dr. R. C. Kemp's and Dr. W. H. Thomson's searches of the hospital records showed that one in sixteen had died as a result of ether anesthesia. He wished to declare his utter disbelief in the accuracy of that statement, and could not understand how such a statement could go unchallenged. Dr. Thomson and Dr. Kemp made some interesting experiments on animals, but giving ether to animals and to human subjects is a different matter. Undoubtedly a person with damaged kidneys is exposed to considerable risk from the common haphazard method of giving ether, but he has yet to see any serious trouble from this source if the ether has been properly administered. In one case, in which the kidneys were known to be damaged, and careful preparation had been made for the anesthesia, the anesthetic so stimulated the circulation that there was actually an increased activity of the kidneys afterward.

DR. JONATHAN WRIGHT spoke of the use of ether in diseases of the upper air-passages. A patient with adenoids, he said, should be anesthetized to such a point that just as soon as the fingers and instruments are removed from the mouth, the patient would cough and expel the blood from the throat. To do this is exceedingly difficult with ether alone. He has seen two laryngectomies, lasting 1½ and 2 hours respectively, in which nitrous oxid was used with great satisfaction. One great trouble from ether in the upper air-passages is the bronchorrhea induced. A drawback to the use of nitrous oxid gas alone is the blackness of the field from the cyanosis.

DR. WILLIAM P. POOL said that the methods described in the paper are hardly applicable to the needs of the general practitioner. Chloroform acts, as do other anesthetics, on the respiratory organs. It is a very violent respiratory and cardiac depressant as compared with ether, and hence he wished to emphasize the greater safety of ether. He had one unpleasant experience with chloroform in a child on whom the operation for phimosis was about to be done. The chloroform had been given on a mask, according to the usually prescribed methods, yet before the reflexes were entirely abolished the respirations suddenly ceased, never to return. This suddenness of the lethal action of chloroform is what is so much dreaded. Ether should be given by the drop method, and air quite freely admitted. He believes the only proper field for chloroform anesthesia is in obstetrics. Such mixtures as the A.C.E. and the Schleich mixtures only give a chloroform effect slightly modified by the supporting action of the other ingredients.

DR. WILLIAM B. BRINSMADE said that four years ago he read a paper before the Brooklyn Surgical Society, on the use of nitrous oxid, but it was received in silence. To-day this is quite commonly used in the hospitals, and both time and ether have been saved. The only criticism he would make on the bag inhaler is the uncleanliness inseparably connected with to-and-fro respiration. In cases requiring minute dissection the nitrous oxid is not satisfactory, because of the dark color of the field. He asked Dr. Squibb why it is that on damp days the patients do not take ether so rapidly as at other times.

DR. E. R. SQUIBB replied that he knew no reason for ether being slower on damp days. A very slight current of air in the vicinity of the inhaler would be sufficient to blow away the ether and make it act slowly.

DR. T. L. BENNETT closed the discussion. He said that he had met with some very slow ethers in hospitals using a cheap grade, and the after-effects were distressing. It is unfortunate that there is more vomiting and after-disturbance from gas and oxygen than from gas alone, probably because the patient receives more gas by this method than where gas is given with air. The rapid asphyxia which supervenes when nitrous oxid gas is administered in the ordinary way prevents such a great intake of nitrous oxid as where the oxygen is administered in conjunction with it, thus largely preventing the asphyxia. Gas anesthesia is at best a rather light form of anesthesia as compared with that obtained from either ether or chloroform. As to the statement made by Dr. Dawbarn he is positive that the clinical reports from the hospital records were incorrect. The laboratory experiments of Dr. Kemp were well done, but his deductions from the clinical records are certainly open to question. Dr. Bennett said that his plan of anesthetizing persons for adenoid operations is to push the anesthesia to the full degree. As a rule, even though the anesthesia is light, considerable blood will get into the upper air-passages, but be discharged again very soon under proper management. The so-called bronchorrhea observed in connection with etherization is not a true one, but really a flow of saliva and mucus, and this being swallowed is regurgitated. In his opinion, ether kills more people through the lungs than in any other way. The immediate effects of chloroform are certainly worse than those of ether, but perhaps if both immediate and remote effects are considered, there will not be such a great difference in the safety of these two agents. He protested against accepting the opinion that the lethal effect of chloroform is instantaneous. He had studied this matter very carefully, and believes that there are always certain danger-signals present. In his experience it has always been foretold by the approach of pallor, by enfeeblement and slowing of the pulse, and by certain states of the respiration. Robust individuals are apt to breathe too vigorously, and take in an overdose of chloroform. The pains of parturition act as a most powerful vasomotor stimulant, and this, together with the hypertrophy of the heart occurring during pregnancy, explains the immunity of the parturient woman under chloroform anesthesia. He suggested that the reason ether is slow on damp days is because of the low atmospheric pressure at such times. It has been found by careful experimentation that variations in the pressure under which gas is administered produce widely different results. It is a recognized fact in the London dental institutions that nitrous oxid gas acts much more slowly when the barometric pressure is low.

Direct Questions, As on Deafness.—Medical witnesses, the Court of Appeals of Maryland holds, may properly be asked such question as to whether the deafness in one ear of a person thrown from a wagon in collision with a street-car was the natural and probable result of the accident. Nor does it deem it necessary that the evidence should be restated in the form of hypothetical questions for them. It holds it enough, in Baltimore City Passenger Railway Company vs. Tanner, that the witnesses simply based their opinions on the facts given in evidence, that were not disputed, they being familiar with these.

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SATURDAY, APRIL 14, 1900.

EPIDEMIOLOGY AND PROPHYLAXIS OF MALARIAL FEVER.

Since the discovery by Laveran, in 1890, of the parasites of malarial fever, there has been unceasing activity in the study of this most important subject. For a time the great interest aroused by the revelations of bacteriologic investigation tended to divert attention from other problems in the domain of etiology, and it is only recently that the field has broadened, and the discoveries in the realm of animal parasitology promise to be not less important than those that have been made in that of vegetal parasitology. That malarial fever may be transmitted through the agency of mosquitoes has been suggested at different times in the past by a number of observers, but the demonstration of the fact has been made only within the last few years. Important work has been done in this connection especially by English investigators in India, by Italian investigators who have pursued this subject with unremitting industry and perseverance, and by German investigators in Africa, and there has been a remarkable concordance in the final results. Among those who have engaged in these studies for many years is Professor Celli,[1] Director of the School of Hygiene, in the University of Rome, who recently contributed an important article on "The Epidemiology and Prophylaxis of Malaria in the Light of Recent Researches." This paper is a summary of what Professor Celli says on these subjects in his book entitled, "La Malaria secondo le Nuove Ricerche," published in 1899, and in successive communications. Celli points out that man is the temporary and the mosquito the definitive host of the malarial parasite, which completes its asexual life and prepares its sexual form in the human blood; while it completes the sex cycle of life, that by which the species of the parasite external to man is assured, in the middle intestine of the mosquito. In the circulation of the malarial contagion the presence of malarial man is indispensable, as the hereditary transmission of malaria from mosquito to mosquito has not yet been demonstrated experimentally or morphologically; nor have resisting parasitic forms been found in the environment external to the body of the mosquito. Transmission is effected only by certain varieties of mosquitoes, and these belong to the genus Anopheles. So far as is at present definitely known, the specific germs external to man do not live in the soil nor in the water, but in the body of the mosquito, although the two former may be favorable or not to the life of the latter. The mosquitoes lay their eggs in sequestered places in clear, slowly running or stagnant waters. The so-called ground waters that appear at the surface and run slowly —trenches, canals, etc.—or are slowly renewed—lakes, ponds—contain the best pabulum for the development of the larvæ of the Anopheles. These waters are relatively cool in summer and relatively warm in winter. The larvæ of the mosquitoes offer slight and the nymphæ much resistance to desiccation. Freezing is injurious, as is also putrefaction after a time. The immature forms can not live in sea-water, in saline waters nor in strong sulphurous ones. Rapid movement of the water further is hostile to their development. The infective agents are most plentiful in the atmosphere during the hours of evening, sunset and night, as the insects lie hidden and sequestered by day. The infective agents rise from limited foci and spread for a limited distance horizontally, obliquely and vertically, as the insects do not fly far from the place where they are born and not to any considerable height. Winds tend to diminish the number of infective agents in the atmosphere by keeping the insects in their hiding places. Woods may be foci of malarial infection, as when they are shady and damp they are the homes of mosquitoes. Of all the vehicles of malarial infection hitherto suggested, the mosquito is the only one that has yet been directly and undoubtedly demonstrated. The only indisputable path by which the infective agent penetrates is the skin bitten by the proboscis through which the infecting mosquito inoculates its sporozoites. The same mosquito may in a single night bite and infect many persons. The biting apparatus is so powerful that it can penetrate a tough skin and bite through fairly thick clothing. The Anopheles do not make a humming sound and are not so annoying as other varieties of mosquitoes, so that one may not be aware of their presence or of having been bitten by them. There are numerous predisposing causes and a number of immunizing agencies against infection with the malarial parasites. Thus, chilling of the body is a predisposing factor; and children are more prone to infection than adults. No race is per se endowed with congenital or hereditary immunity, although some individuals are naturally immune and in some immunity appears to be hereditary. Malaria cachexia may be followed by immunity. Artificial immunity can be induced by drugs such as euchinin and methylene blue.

Of first importance in prophylaxis, after the diagnosis has been made by microscopic examination of the blood, is the removal of the patient from the locality in which the infective mosquitoes prevail—preferably to an elevated situation—in order to avoid repeated infection of the patient, as well as infection of others. Nor should the patient return until his blood is shown to be free from parasites. At present a practical means of treating the patient in order to prevent biting by mosquitoes is wanting. Quinin is a specific disinfectant for amebæ organisms, and consequently for the malarial parasite

[1] British Med. Jour., February 10; Berliner Klin. Woch., February 5 and 12; THE JOURNAL, March 3, 1899.

in the amebic stage. It is, therefore, best given after a paroxysm. Large doses should be administered, 30 grains for example at the beginning of the infection, and be repeated in doses of 8 grains for several days and then at intervals of five, six or seven days. This treatment does not, however, prevent recurrences, and for this purpose steps should be taken to destroy the larvæ in the water and the mosquitoes in the air. The larvæ can be destroyed by means of certain vegetable powders —as the expanded flowers of Dalmatian chrysanthemums on a large scale in malarial places. The mosquito can be destroyed by the fumes given off by an ignited powder composed of the unexpanded flowers of the chrysanthemum, valerian root and aniline dyes. Various measures may be employed to protect the skin against bites, such as avoidance of exposure of the surface of the body after dark, the protective influence of special coverings for the skin, the use of screens, netting, etc., local application in the form of washes, ointments and soaps of essential oil of turpentin, iodoform, menthol, valerianic acid, extract of tobacco. The most promising agent for the establishment of artificial immunity is methylene blue. Arsenic used on a large scale is said to have yielded uncertain results. A most important general prophylactic measure consists in efficient drainage and the provision of a healthy soil. Above all things, opportunity for the accumulation of water should be removed. In addition general hygienic principles must be observed and all predisposing influences avoided.

DISEASES OF THE PINEAL BODY.

Some time ago reference was made in these columns to a form of giantism in a boy, 4 years old, associated with sarcoma of the pineal gland. The case was described by Oestreich and Slawyk.[1] In the Transactions of the London Pathological Society for 1899 (Vol. 1) there occur a number of interesting reports of cases of tumor and of other lesions of the pineal body. Cyril Ogle describes a primary, slightly pigmented sarcoma of the pia over the surface of the cerebrum. The patient was a woman, 32 years old. The illness began suddenly, with a fit of unconscious and right hemiplegia; this was followed by headache, emaciation, choked disc, mental dulness ending in coma, intermittent aphasia and right hemiplegia. There is no mention in the report of any abnormal enlargement of any part of the body. The patient was under observation for ten weeks.

Ogle also describes a tumor of the pineal body in a boy aged 6 years. The growth was globular, about one inch in diameter, and the only tumor in the body. Its structure is best described as that of an alveolar sarcoma with hemorrhage and cysts. There were certain spaces, lined with columnar epithelium, which it is thought might possibly represent a rudimentary retina. The first symptoms noticed were a change in manner, inclination to sleep a great deal, and masturbation. It is noted that the penis was uncommonly large, the pubic hair plentiful but the testicles were not excessively large. The gait was staggering. Sleepiness continued to be the most striking symptom. The external recti became paralyzed and the eyes blind. The enlargement of the penis, the general symptoms of an intracranial tumor, the blindness, etc., led to the probable diagnosis during life of a tumor of the pituitary body. Ogle mentions that Heubner[2] has recorded a case of tumor of the pituitary in a boy 4½ years old, in whom the penis, scrotum, and testes were abnormally large, and the pubic hair fully grown. The excessive growth took place in one year.

Lawrence also reports a tumor of the pineal gland in a male aged 16, associated with acute tuberculous leptomeningitis. The tumor was relatively small; it is described as a gliomatous growth, the central part having undergone degeneration. There is no statement of any changes in the development of the body in this case.

Garrod, Russell, and Campbell describe several examples of cystic formations in the pineal body, but without much if any clinical significance; at all events there is no record of any clinical symptoms referable to the resulting enlargement.

Finally Lord makes some general statements concerning the normal structure and morbid changes of the pineal body. He also describes an enlarged pineal body in a case of cerebral gummas; the septa of the gland were extremely cellular, new septa had formed, and the condition resembled a hypertrophic cirrhosis.

In addition to the tumors of the pineal body recorded by the London observers, by Oestreich and Slawyk, and by Heubner, it may be well to mention that Weigert and Gutzeit each describe a teratoma; Ziegler, Coats, and Falkson record growths of a sarcomatous structure containing cysts or glandular formations lined with cylindric cells; in Turner's case the structure was also complicated, the sarcoma containing collections of large cells, referred to as carcinomatous, and other cells regarded as nerve-cells; Duffin "reports a case of apparently a solitary glioma." Oestreich and Slawyk mention that Henrot has described a case of acromegaly with sarcoma in both the pituitary body and the pineal body.

The pineal body develops as a hollow outgrowth of the posterior portion of the fore-brain; in some of the lower animals the hollow outgrowth becomes elaborated into a median eye, which is especially perfect in the lizards (Badwin Spencer). This eye is not functional in any living animal. The relation of the pineal body to a third eye has been fully discussed in an editorial in this journal.[3]

Special nervous functions are not attributed to this body. Ogle mentions that extracts of it are sold, to be given "in functional diseases of the brain due to failure of nutrition; in cerebral softening; chronic mania, and dementia." Representing developmentally a median eye,

[1] Virchow's Archiv, 1899, 157, 475.

[2] Allg. Med. Central Zeitung, An. 28, S. 89. (Quoted by Ogle.)

[3] THE JOURNAL, Feb. 15, 1896, p. 343.

it would not be expected that diseases of the pineal body would cause anomalies of growth such as follow changes in the anterior lobe of the hypophysis, and of the thyroid gland. The pineal body does not possess a glandular and secretory structure as ordinarily understood. It is composed of spaces filled with small nucleated cells of a uniform appearance. Nerve-fibers are described in the pedicle; the question of their occurrence in the pineal body proper does not seem to be fully settled.

It would therefore be a matter of some surprise if it should appear that diseases of the pineal body are closely associated with anomalies of growth. There are now at least three cases of tumor—all described as sarcoma—of the pineal body associated with overgrowth, especially of the genital organs, namely Ogle's, Oestreich and Slawyk's and Heubner's. All three concern boys between 4 and 6 years of age. In two the overgrowth was limited apparently to the penis, and the exact time of its onset is not given. The overgrowth was most marked in Oestreich and Slawyk's case, resulting in a form of giantism, distinct however from acromegaly. Future observations must decide whether the overgrowth, which appears to have especially involved the genitalia, was a mere fortuitous matter, in these three patients, whether it was caused by the changes in the pineal body itself, or by secondary effects of the tumors on adjacent structures.

Some of the symptoms of tumor of the pineal body are in many respects similar to those produced by Ferrier by destroying the surface of the superior tubercles of the corpora quadrigemina in monkeys: blindness, dilated and stiff pupils, no motor nor sensory paralysis, but loss of normal equilibrium. Another symptom that was marked in some of the cases is sleepiness.

THE DEADLY PNEUMOCOCCUS.

The dominant microbic pest of mankind is generally supposed at the present time to be the bacillus tuberculosis which causes one-seventh of the mortality of civilized races, or at least it is so claimed. That this estimate may be too high and that the morbidity of tuberculosis is not quite as necessarily equivalent to its mortality as was formerly supposed does not materially affect the question; it is one of the most serious health problems with which we have to deal. With the attention that is now being given it, however, there is a chance that we may overlook some other perhaps hardly less formidable disease, and possibly neglect matters that are of only slightly less importance than the "great white plague." According to the report of the Health Department of the City of Chicago, the deaths from consumption in that city during 1899, numbered 2516, and from tuberculosis of all varieties and locations, 2920—a percentage of 11.449 on the total mortality. During the same period the deaths from pneumonia also numbered 3438, or a percentage of 13.48 on the total deaths. In other words, the mortality of pneumonia exceeded that of all forms of tuberculosis by 518 or 17.7 per cent. If we take the year 1899 alone, pneumonia would appear to be a much more important factor in the mortality than tuberculosis. It, however, is rather exceptional in this regard, and this is more noteworthy since the total annual death-rate for the year was small—only 14.57. Taking up the statistics of other years we find that in 1898 also the deaths from pneumonia numbered more than those from consumption, though not more than those from all forms of tuberculosis, and that in the previous years since 1890 the deaths from this cause have generally exceeded those from pulmonary tuberculosis, the years 1894, 1896, and 1897 being the only exceptions. Prior to 1890 the deaths from consumption invariably exceeded those from pneumonia. Another striking fact is that while the ratio of deaths from consumption to the total mortality has been nearly stationary for the past twenty years, and its ratio to population has decreased, that from pneumonia has increased rather than otherwise in both these respects.

These figures of the comparative mortalities of tuberculosis and pneumonia are obtained from Chicago, a lake city, where lung and catarrhal diseases prevail, and the question whether the same general tendencies exist elsewhere may be raised. To test this we have consulted the health reports of several states that publish accurate vital statistics. In Massachusetts we find that the pneumonia death-rate on the total mortality has risen from 7 to 8 per cent. in the late '70s to 9 or 10 in the last decade (1888-1897). In the same period that of consumption has decreased from about 17 to about 11½ per cent. In Rhode Island and Connecticut we find a similar increase of pneumonia and decrease of consumption mortality, and were the figures available we would probably find them corresponding more or less closely throughout our northern Atlantic and lake regions. It is unfortunate that there are not fuller data for the interior states, but what we have for many of them are not likely to be quite as full and reliable as those to which we refer. There is evidence enough to show that, while recognizing the influence of the grip during the last few years and making all due allowance for less perfect diagnosis in the past, pneumonia mortality is on the increase over a considerable portion, at least of the northern United States, while that of phthisis is diminishing.

At the present time acute lobar pneumonia is recognized as an infectious disease, due to a germ, the pneumococcus of Fraenkel in at least 95 per cent. of cases. What proportion of the fatal cases of pneumonia reported in the health statistics were of this type, and what were due to other germs, streptococci, Pfeiffer bacilli, etc., is not certain, but we can probably assume with reasonable certainty that 70 or 80 per cent. were pneumococcal. The estimate of Netter that 66 per cent. of pneumonias are primarily due to this germ is probably an under- rather than an over-estimate. While something may be allowed for diagnostic errors, we certainly have here a formidable showing of the malignant activity of this germ in this one disease. When we also take into consideration the fact that it is an active etiolog

factor in the diseases of many other organs of the body besides the lungs, in the disorders of the central nervous system, of the air-passages and throat, the pleura, the heart and its envelope, the ear, the liver and elsewhere, it will plainly appear that we have not adequately estimated its morbific powers. In fact it is probably not much less widely disseminated as an agent of evil than is the tubercle bacillus, and the apparent increase in the mortality it produces suggests at least the utility of a fuller study of its natural history and its prophylaxis. While we are giving our attention to tuberculosis, a disease that is apparently on the wane, if only to a slight extent, we might also divert our minds with one that is apparently increasing among us. It is not necessary to excite alarm, but a little more attention to a disorder that has, we have reason to believe, a widely varying range of virulence and which, in our northern climate, is our most fatal disease for at least half the year, would not be out of place. The fact that it is so closely related in its morbidity and mortality to climatic conditions would seem to indicate the chief line of prophylactic endeavor, but there are other factors also to be considered. At the present time it appears to be getting a little the better of us and it is for us to find the reason why.

ORGANIZED EFFORT SUCCEEDS.

The effect of even partial organization among physicians was easily noticeable in the recent city election in Cincinnati. One of the appointees of the city administration was an out-and-out quack and, as a body, says the *Cincinnati Lancet-Clinic,* "the medical profession was weary and tired of making reports to an ordinary plain quack." Hence the physicians made up their minds that there should be a change. And there was a change.

HEALTH AND HYGIENE.

A somewhat celebrated Boston philosopher says he has lived according to the following rules: he always sits in a draft when he can find one, wears the thinnest underclothes he can find, winter and summer, and prefers to work in a cold room, 55 to 60 F. He works the largest part of the twenty-four hours, day or night indifferently, eats when hungry, rarely tastes wine but drinks two or three quarts of beer daily and smokes a pipe all the time when he is at work. He evidently considers himself a pattern of health, and apparently publishes his rules of living in a sort of spirit of bravado, and to make himself a monument of the futility of ordinary hygienic rules of life. There is a streak of vanity in the announcement, but great men are often vain and may even be foolish in regard to their personal qualities. One with an originally strong constitution, favored with a special freedom from accidental disease, gifted with a happy, equable disposition and living under favorable conditions, can sometimes sin for a time against many of the minor and some of the major hygienic moralities with comparative impunity. Thus we occasionally hear of favored beings who have gone to bed drunk every night up to 90 or 100 years. These are, however, somewhat apocryphal; they are seldom people of much intelligence and possibly also not always reliable as to their ages or history. In the case above we have a noted man in the prime of life, 58 years old, who has done much intellectual work of a high order in his past, and should have a considerable future still before him. He is said to be in his dimensions, 72 inches by 46, and to weigh 240 pounds or more, from which it would appear possible that the degenerative processes had already made a headway in his organism. One does not care to venture prophecy in any such individual case, but it is variously suggestive, and it will be of interest to watch its future. In the meantime we ordinary people will do best for ourselves by obeying and living according to the well-established rules of temperance and hygiene.

THE PRODUCTION OF CARCINOMA BY EXPERIMENTAL DISSEMINATION OF EPITHELIAL CELLS.

H. Lambert Lack[1] in a preliminary note, describes an experiment which he made in order to test his view that carcinoma is simply the result of the entrance of the normal epithelium of the body into the lymphatic spaces and its continued growth therein. Opening the abdominal cavity of two rabbits, the ovaries were cut open, the raw surfaces freely scraped, and the milky juice containing free epithelial cells thus obtained, was allowed to diffuse through the peritoneal cavity. In the animal which survived for about one year numerous peritoneal nodules were found extending into the liver, and similar growths on the pleura, the pericardium, in the lungs and in the mediastinum. The microscopic structure was that of a columnar-celled carcinoma. Unfortunately for the value of this experiment, which is tentatively claimed to have produced the disease, and has been so interpreted by others, the condition of the uterus has been left out of the consideration. "The uterus was greatly thickened; the mucous membrane papilliform, and at the place in the wall was a tumor as large as a cherry." There is no record of any microscopic examination of this growth to show that it is of different structure from the other tumors, and it is believed that one is fully justified in saying that the possibility of this growth in the uterus being the primary carcinoma, and developing under perfectly natural conditions, can not now be successfully denied. Shattock[2] has recently described carcinoma of the uterus of a rabbit, showing that uterine carcinoma may develop spontaneously in this animal.

QUACKERY IN AMERICA.

The other day, in London, an American was sentenced to five years' imprisonment for swindling. The fellow was a palmist and had plied his trade in Chicago, New York and elsewhere in this country unmolested, and he thought he could do the same abroad, but he could not. Commenting on the occurrence, the *Chicago Journal* says: "There seems to be something in the social atmosphere of this country peculiarly favorable to impostors of the palmist and clairvoyant order. They flourish here. Foreign observers have been amused not a little to see their signs hung out like a physician's shingle and their columns of cards in the newspapers. They flourish elsewhere, it is true, but not to the same extent. This, among civilized countries, whose people are sus-

[1] Jour. of Path. and Bact., 1899, vi, 154
[2] British Med. Jour., 1900.

pected of intelligence, is the real paradise of the palmist, the spirit rapper and the astrologist." And it might have added: the advertising quack, the medico-religious humbug and the secret nostrum vendor. Just why this country is such a profitable field for every kind of humbug and delusion is a question on which we are not prepared at this time to hazard an opinion. The truth of Barnum's assertion, however, is more evident to-day than ever. Dowie, failing on his native heath, went to Australia and tried to work the people there, but his success in that country was such that he was penniless when he arrived in this land of liberty. Here, though, in a few short years he has succeeded in gaining not only a large following, but, what is more to the purpose, a large fortune. A little while ago a man in Missouri, of the name of Still, promulgated a theory that all the physical ills of the human race were caused by misplaced ligaments and dislocated bones, and now thousands of dupes, even including senators and governors—who by the way are not necessarily overly gifted with either common sense or statesmanship—are believing in this new "scientific" discovery. Could such an idiotic theory obtain a foothold in any other country, and if not why not? Down in Missouri—poor Missouri!—another fellow is rapidly becoming rich as a magnetic "healer" who "has the power to give the absent as well as the present treatments." He also gets them coming and going, for he teaches others—at so much per head, of course—and is rapidly building up another system or school of treatment. A newspaper before us contains four columns of advertisements of clairvoyants, palmists, trance mediums, etc., more than a hundred individuals and all located in this city of schools. A third of the advertising space of the same paper, and it is one of the best in Chicago, is taken up with advertisements of quacks and quack medicines. These show to what depths of moral degradation the advertiser will stoop, and at the same time show how much credulity and how little common sense the average reader must have. Why does all this pertain to this and to no other country?

WOMEN NURSES IN MILITARY HOSPITALS.

At the present time there are before the military committees of Congress two bills, S. 3731 and H.R. 6879, providing for the employment of women nurses in army hospitals. From this it is not to be inferred that there are no women nurses in the army. On the contrary, early in the Spanish-American War female nurses were employed by the Surgeon-General of the Army for service in the general hospitals. In September, 1898, over a thousand trained nurses were on duty in the hospitals, general and field, and at the close of the last fiscal year two hundred were still on the rolls. Experience gained during this period enabled Surgeon-General Sternberg to provide an efficient organization for the women nurses. The regulations governing the female corps were published in full in his last annual report. If the above-mentioned bills limited their provisions to the accomplishment of that which is stated to be their object we would merely question the necessity for legislation to effect that which has already been effected and which has already received congressional sanction in the form of appropriations for the payment of the nurses employed. These bills, however, give specifications as to the character of the organization which, if they became law, would necessitate a reorganization on new and untried lines. That the army does not look with favor on the proposed legislation may be seen from the introductory paragraph of an editorial discussion of the subject in the *Army and Navy Register*, April 7, 1900:

We see no reason for the enactment of House bill 6879 and Senate bill 3731, which have the identical ostensible purpose of providing for the employment of women nurses in military hospitals of the army. This measure has influential backing, most of the supporters being women of prominence who have devoted themselves and their resources to charitable and humane tasks. The high character of the friends of the bill should not preserve it, however, from the defeat which so unmeritorious a measure deserves. There are no arguments to justify passing the bill. It offers no improvement on the existing system of supplying women nurses to the military service. That system was evolved from the methods of the war and is conducted on practical lines within the control and administration of the Surgeon-General of the Army and the Secretary of War.

TABLET-TRITURATES AND READY-MADE PRESCRIPTIONS.

The popularity of ready-made medicines is always a matter of concern to the pharmacists and to a somewhat lesser extent to scientific physicians. The very general use of tablet triturates and of special medical preparations is one of the facts we have to meet, and the question is how are we to meet it? Is it to be considered, as many of our pharmaceutical friends hold, an absolute evil, or shall we accept it as something to be modified only for the better? It is possible that it implies a lack of facility of drug-combining, and probably of a certain sort of pharmaceutical knowledge in the physician, and this is to be regretted. On the other hand, there is a certain attractiveness and apparent safety in some features of the new methods, strongly in their favor with medical men. An honestly made tablet triturate ought in many cases to afford as safe a method of administering powerful drugs as a pill or solution, however carefully compounded by a druggist from a prescription. It is the convenience of these preparations, however, that accounts for the favor with which they have been so generally received. We should probably not be able to get rid of them even were it desirable to do so, and it is well therefore to make the best of the situation. The one ethical rule that it is safe for any physician to follow will be to prescribe or to give nothing unless its composition and reliability are known. It would be a still better rule to avoid the use of all ready-made compounds, except such as are official, and to cultivate such a knowledge of pharmacy and therapeutic invention as will make the physician perfectly self-reliant in this respect. The simple drugs or alkaloids in triturate form have probably come to stay, and the fact need not be altogether deplored, for reasons already given, but the prescriptions made up in this form tend to encourage a sort of therapeutic laziness that should be discouraged. The ideal physician is one who knows and understands thoroughly the tools he uses, and it is to be feared that the present tendencies, while admirable in some other respects, are not what one

could desire in this particular direction. In reading over the questions as published by various state examining boards, the thought suggests itself that they have it in their power to give more aid practically in the needed reform in this matter. The suggestion is therefore here offered of a more thorough practical test of pharmaceutic knowledge in their examinations than has sometimes, at least, been made. A suggestion of possibly still greater value would be that our colleges give more attention to this practical point. It may be that in our zeal for science we may have too totally overlooked the despised "cook book" therapeutic art of prescribing.

Medical News.

According to the *Medical News,* Mrs. Mary Baker G. Eddy, leader and founder of the "Christian Science" Church, is very ill at her home in Concord, N. H., with a cancerous affection.

The Liverpool School of Tropical Diseases has decided to admit qualified medical women on equal terms with men students. The second expedition for West Africa will soon start. The party comprises Drs. Annett and Dutton, and Dr. Elliott of Toronto.

Chicago's "Christian Scientists" are objecting to the teaching of physiology in the schools. They protested to the Chicago Board of Education, at its meeting, April 9, against it, against medical inspection of schools, and against the rules requiring vaccination. The reply of the Board was to the effect that the children of "Christian Scientists" would be governed by the same rules as were the children of the plain, common people.

We learn from the *Medical News,* that a physician from Kentucky, on Broadway, New York City, met two or three men, and one of them led him to believe that he had known him in Kentucky. The Doctor went with them to a place near Park Row and the Bowery, and in a spirit of friendship cashed a check for $400 for the one who claimed to have known him in Kentucky. The check turned out to be worthless. The physician was in New York preparatory to taking a trip to Europe, but after the loss of his money he returned to his home in Kentucky.

A writer in the *British Medical Journal,* March 31, points out that the death-rate from disease in the forces in South Africa has been considerably lower than the rate in the American Army in Cuba, but in both instances the most virulent enemy to soldiers has been typhoid fever. He persistently advocates boiling the water, and in South Africa it seems that this can be accomplished satisfactorily as there the water can be cooled to almost ice-cold by being suspended in canvas water-bags or felt-lined water-bottles in the open air, the dry atmosphere producing such rapid evaporation from the surface that the temperature is rapidly lowered.

Status of the Plague.—The Indian correspondent of *The Lancet* gives the recorded cases of plague in Calcutta as 481 for the week ending March 3, with about 100 deaths a day from March 3 to March 6, the date of writing. He shows that the plague returns for Bombay are too low, as published. The plague statistics for the whole of India, for the week ending March 3, gave 3363 deaths as compared with 3184 the previous week. In Karachi the deaths increased from 12 to 47, and in the Bengal Presidency, from 1905 to 1936 that week, while the *British Med. Jour.* (March 31) is authority for the statement that 4725 deaths occurred here the week ending March 21, and 744 in Calcutta. The disease has also appeared at Aden. In Mauritius, 8 new cases and 5 deaths occurred the week ending March 22.

The Profession in France.—The overcrowding of the profession, which has been the theme of so many jeremiads, has been shown to be a myth as far as France is concerned, by some recent comparative statistical studies. They show that in 1847, when no one thought of complaining of any overcrowding, there was one physician to each 2020 inhabitants; in 1876 there was one to each 2568; in 1896, one to each 2565. The physicians crowd to the large cities and centers of wealth, and forsake the smaller towns. In certain departments, like Haute-Savoie, there is but one physician to 4030 inhabitants. The overcrowding of the profession is therefore merely local congestion, while other regions suffer from the lack of medical attendance. These unexpected facts have been brought out by a prize offered by the French *Concours Médical* for the best work on the "Encombrement Medical."

Control of Venereal Diseases Among Troops.—On the recommendation of Major F. V. Ives, chief surgeon, Department of Matanzas and Santa Clara, Cuba, the department commander, Gen. J. H. Wilson, has issued a circular, dated March 13, 1900, requiring a weekly inspection of all the enlisted men of the command to be made by the medical officers in the presence of company commanders. A list of all men found to be infected with venereal disease is to be drawn up under the direction of each company commander, and this list is to be posted conspicuously on the bulletin board or in the barracks of each organization. The privilege of the canteen and all pass privileges are to be withheld from all those whose names are thus posted. This is not intended as punishment but as the removal of causes which could tend to retard the recovery of the individual. The circular provides also for instruction by medical officers to non-commissioned officers on the effects, results and prevention of gonorrhea, chancroids and syphilis that the latter may be in a position to influence and instruct the men of their companies.

Insanity Among U. S. Troops in Philippines.—For some weeks past there have been published in the columns of the daily press statements which lead the public to believe that military service in the Philippine Islands is not only destructive of the *corpus sanum* but also of the *mens sana,* for which it should furnish a habitation. We can attribute these statements only to sensationalism or to falsifications for specific purposes. The first announcement of the alleged disastrous effect on the mentality of our troops by the tropical or other conditions of our far away islands appeared in a Washington paper of February 13, giving what purported to be a telegram from San Francisco, Cal., of the same date, to the effect that: "Eleven insane soldiers were to-day sent from this city to the Government Hospital at Washington, D. C., and it is probable that about thirty more will go east during this week. During the last three months nearly 250 demented soldiers have been sent across the continent, and it is said that over 300 more will soon arrive here from Manila. In nearly all cases the men are violently insane." This drew from the Adjutant-General of the Army a statement to the effect that from May 1, 1898, which may be regarded as the beginning of our recent war experiences, to the date of the cited telegram, there had been received into the Govern-

ment Hospital for the Insane, to which all cases of this kind occurring in the military service are committed: 134 soldiers of the regular army, 70 of the state volunteers and 10 of the United States Volunteers, making a total of 214 cases in 21½ months, out of a force which for many of these months aggregated more than a quarter of a million men; and that 37 of these cases came from the islands of the Pacific Ocean. This should have put an end to the sensational statements of insanity in our military forces in the Philippine Islands, but the same publicity does not appear to have been given to the adjutant-general's statement that was accorded to the sensational telegram, for since then many letters of inquiry on the subject have been received at the War Department and a Senate Resolution, No. 222, was adopted March 22, calling for information concerning sanitary conditions and health in the Pacific Islands, and particularly concerning the number of insane soldiers sent home for treatment. In reply Surgeon-General Sternberg has stated that during the twenty-one months, July 1, 1898, to March 31, 1900, the forces in the islands had a mean strength of 32,000 men. From this command, during the period stated 55 men were returned to the United States for transfer to the Government Asylum for the Insane, a number which is equivalent to 31.3 cases for twelve months. These cases are then compared with the numbers committed annually to the asylum from the regular army during the past ten years. Nine of these years were years of peace; the tenth includes the period of active campaigning during the Spanish-American War. The comparison is as follows:

Year.	Mean Strength.	Insanity, Cases.
1889	27,206	34
1890	26,684	33
1891	26,460	37
1892	26,861	48
1893	27,659	35
1894	27,674	24
1895	27,326	21
1896	27,183	22
1897	27,374	21
1898	46,635	56
Mean—10 years	29,106	33.1

As to the character of the cases received from the Philippines the only information we have is that of 37 cases admitted into the hospital from the Philippines from May 1, 1898, to Feb. 13, 1900, 11 had already been discharged as cured on the latter date. From this we must infer that the men who scissor the items for the daily press prefer sensation to fact.

PENNSYLVANIA.

THE LANCASTER Board of Health has formulated an ordinance imposing a penalty on persons expectorating in a public conveyance.

THE FOLLOWING officers were recently elected members of the Bridgeton Board of Health: president, Ellsmore Stites; secretary, Isaac T. Nichols; treasurer, William H. Ballenger; physician, John H. Moore.

AT A MEETING of the Tamaqua Borough Council it has been decided to reduce the salaries of the health officer and secretory of the Board of Health to $50 annually. The Board of Health, however, has not agreed to this but fixed the salary of the health officer at $120, and that of the secretary at $100 annually. Whether Council can be made to pay the amounts named remains an open question.

THE PHYSICAL laboratory of Lehigh University, South Bethlehem, was destroyed by fire April 6. The building was a four-story stone structure, erected in 1893, and with its contents was valued at $200,000. The insurance on the building is $50,000. It is announced that the laboratory will be rebuilt at once.

BOARD OF MEDICAL EXAMINERS.

The State Board of Medical Examiners met in Harrisburg on April 3, to arrange for the examination to be held in Philadelphia and Pittsburg, June 26 to 29. The questions will be prepared and not given out until the day of examination, and will not be printed. Dr. Henry Beates of Philadelphia was re-elected president, and Dr. W. S. Foster of Pittsburg, secretary. The new members of the Board are Drs. McConnell and Lindsay.

Philadelphia.

DR. LAMBERT OTT has been re-elected president of the Twenty-ninth Sectional School Board, for the ensuing year.

AT THE meeting of the Geographical Society, held here April 4, Dr. Edmund W. Holmes delivered an address on "The Briton and the Boer."

A BEQUEST of $1300, from Nicholas Ost, has been divided between St. Joseph's and St. Mary's hospitals and other charitable institutions.

DR. M. HOWARD FUSSELL delivered the principal address at the meeting of the James Tyson Medical Society, on the subject of "The Manner of Acquiring and Conducting a Medical Practice."

THE NEW Children's Hospital of Germantown will be opened for the receiving of patients at an early date, sufficient funds having been raised to establish one ward, and a dispensary.

THE BOARD of Health has passed a resolution to the effect that hereafter all cases of so-called membranous croup shall be reported and recorded as cases of diphtheria.

DR. MOSES BEHRENS, a former resident physician of the Jewish Hospital, has been appointed a resident physician at the Philadelphia Hospital, and Dr. Ridpath, also a resident of the Jewish will accept a similar position at the Medico-Chirurgical Hospital.

COLONEL J. LEWIS GOOD, chief of the Bureau of Health, is making an effort to have all cases of tuberculosis reported to his department, doubtless for the purposes of giving proper instruction in regard to preventing its spread among members of the families in which the disease exists.

AT A RECENT meeting of the Board of Health, a communication was received from William J. Buchanan, Director-General of the Pan-American Exposition, to be held at Buffalo, N. Y., next year. It requested that the city make an exhibit of sanitary measures and appliances, in the form of photographs or in other convenient shape for demonstration.

A REORGANIZATION in the teaching faculty of the University of Pennsylvania is to be effected so there will be one professor of surgery and two of clinical surgery. As heretofore arranged the professorships of clinical surgery and the John Rhea Barton Professorship of Surgery have been held by Dr. John Ashhurst, who recently resigned on account of ill-health.

SEVERAL CHANGES have recently been made in the teaching faculty of the Jefferson Medical College: Dr. F. X. Dercum, who for several years held the chair of clinical professor of diseases of the nervous system, has been elected professor of neurology; and Dr. J. Chalmers DaCosta, who held the chair of clinical professor of surgery, has been elected professor of principles of surgery and of clinical surgery.

MORTALITY STATISTICS.

During the past year the number of deaths exclusive of still and premature births amounted to 23,796, an increase of 6 over the previous year. The number of births was 28,441, a decrease of 649 over that for 1898, or a birth-rate of 1 to each 44 living persons. The death-rate in 1899 was 18.78 per 100, or one death to each 52.23 living persons. The death-rate for 1898 was 19.18 per 1000. During the year 4161 cases of diphtheria were reported, an excess of 7 over the previous year. In addition there were 230 cases of membranous croup, as compared with 260 in 1898. There were 2281 cases of scarlet fever, an increase of 381 over the previous year; 142 cases of smallpox, and 251 cases of cerebrospinal meningitis. The following represents the death-rate during the past few years: 1896, 20.17 per 1000; 1897, 18.72; 1898, 19.18; 1899, 18.78. The work of the Municipal Hospital was greater last year than any other year in its history, the number of admissions being 2357, of

which number 1970 were discharged, 381 died, and 202 remain in the hospital. At present there is one leper there. The mayor recommends an appropriation for enlarging the institution.

MARYLAND.

DR. R. A. DODSON has been appointed school commissioner of Talbot County, for four years.

MEDICAL LEGISLATION.

The bill exempting graduates of Maryland Colleges from examination by the State Board of Medical Examiners was defeated, so that the present law remains in force, at least for the next two years. This law has worked well, although it might be improved on by more exactly defining who are to be regarded as practitioners of medicine, and exacting of candidates for the license a four years' course of lectures. The legislature has also appropriated $5000 for the aid of the Frederick City Hospital, and has passed the act for the appointment of a sanitary officer for the Thirteenth District of Baltimore County. In addition the following annual appropriations were made for 1901 and 1902—Baltimore institutions except as indicated: Hospital of the Good Samaritan (Women's Medical College), $1500; Lying-In Hospital (College of Physicians and Surgeons), $3000; Nursery and Child's Hospital, Hebrew Hospital, and the Home for Incurables, each $2500; Lying-In Hospital, University of Maryland, $3000; Hospital for the Women of Maryland, $4000; Baltimore City Hospital, $5000; St. Agnes' Hospital (R. C.), $2500; Home and Infirmary of Western Maryland (Cumberland), Maryland General Hospital (Baltimore Medical College), and Maryland University Hospital, each $5000; Hospital for Relief of Crippled and Deformed Children, $2000; Provident Hospital (Colored), $1500; Maryland Lying-In Hospital (Baltimore Medical College), $3000; Hospital for Consumptives, $2000; Peninsular General Hospital (Salisbury, E. S.), $2500; United Charities and Hospital Association (Cambridge, E. S.), $5000; Maryland Hospital for Insane (Spring Grove), $25,000; Springfield Hospital for Insane (Sykesville), $30,000; Maryland Asylum and Training School for Feeble-Minded, $15,500; Maryland Temperance Hospital (Maryland Medical College), $1000; University of Maryland, School of Medicine, $4000; College of Physicians and Surgeons, $4000; Baltimore Medical College, $4000; Johns Hopkins University, $24,000. Thus it will be seen that the three Baltimore Medical Colleges got their appropriations, although not the amounts they wanted ($15,000 each).

Baltimore.

THE COLLEGE of Physicians and Surgeons has 230 matriculants this season.

DR. CHARLES E. DOHME has been appointed manager of the Female House of Refuge.

PERSONAL property valued at $149,465 is distributed by the administration of the estate of the late Dr. J. Pembroke Thom.

DR. EDWARD J. BERNSTEIN will go abroad for six months' study in German hospitals.

DR. WILLIAM OSLER, who has been ill with la grippe, has recovered sufficiently to be up and see a few office patients.

THE WOMEN'S Medical College has resumed its eight months' sessions. About three years ago it cut off the last half-month.

A MEDICAL and surgical dispensary has been established at the southeast corner of Light and Ostend Streets, South Baltimore, by Dr. Clarence E. Downs and others. A fee of 10 cents for each prescription is charged, as at the Johns Hopkins Hospital. There are no hospitals nor other dispensaries in that section of the city. It is hoped to make the institution the nucleus of a hospital.

DR. J. WHITRIDGE WILLIAMS is writing a text-book in obstetrics, to be the successor of the late Lusk's work on the same subject. It will contain much original work and many original illustrations in histology. There is a large field in this department at the Johns Hopkins Hospital, 500 cases having been registered there last year, 60 per cent. in the out-patient department.

CASE OF CRETINISM.

A case of cretinism was shown at the medical clinic of the John Hopkins Hospital, April 4. The patient, the child of Russian parents and born abroad, in a locality where the disease prevails, was a female, aged 6, but appearing to be not over 2. The protuberant abdomen, stunted growth, short extremities, increased subcutaneous tissue, open mouth, enlarged tongue and mental imbecility were all marked. No thyroid gland could be detected.

DISLOCATED CERVICAL VERTEBRAE.

A young man is now at the University of Maryland Hospital suffering from a dislocation of the cervical vertebræ, due to a fall from a fence, striking on his head. He is 18 years old and the accident occurred about the middle of the month. He can not turn his head without turning the entire body, and the chin is drawn down upon the chest. The muscles of the neck are drawn tight like cords and a lump can be felt through the mouth in the back of the throat. A diagnosis was made of dislocation of the fourth and fifth vertebræ. There is also a slight lateral dislocation of these bones, one upon the other. The patient was unable to lie on his back and, owing to this and the impossibility of moving his head, there was difficulty in getting an X-ray photograph. Special apparatus was therefore devised. A framework was built about the head, the patient being in a sitting position, on which the sensitive plate might rest, and front and side views were then taken. The photograph confirmed the previous diagnosis. An attempt to replace the displaced bones under an anesthetic is contemplated, by pressure alone, if possible, and if not, by cutting and removing portions of the vertebræ. The patient is able to walk about.

NEW YORK.

THE ANNUAL report of the health officer of Utica states that there were 978 deaths during the year.

THE ASSEMBLY, April 3, passed the bill appropriating $1,000,000 for the construction of buildings, repairs, and improvements at the state hospitals for the insane.

THE STATE Senate, April 5, passed the bill establishing a hospital to be known as the New York State Hospital for the Care of Crippled and Deformed Children. The sum of $15,000 is appropriated, and the institution is to be under the supervision of five managers appointed by the Governor.

STATE HOSPITAL FOR CONSUMPTIVES.

The bill to establish a state hospital in the Adirondacks for the care of persons in the incipient stage of pulmonary tuberculosis has had a rather hard time in the legislature. The bill called for an appropriation of $150,000. Acting under the pressure of an emergency message from the governor, this measure, known as the Davis-Hill bill, was finally passed by both houses, but not until the blil had been amended to reduce the appropriation from $150,000 to $50,000.

THE GERRY SOCIETY.

As a result of the strong personal fight that Mr. Gerry has made in the legislature against the bills aimed to bring his society under the same jurisdiction of the State Board of Charities as other similar societies, previously noted in these columns, these bills have been defeated. The opposition to them seemed to be purely a personal one, as it was not shared in even by some of Mr. Gerry's own trustees, or by officers presiding over almost identical societies in other parts of the state. Governor Roosevelt sent in an emergency message concerning these bills during the closing days of the session, but the opposition managed to raise some technical point by which it became necessary to amend and reprint the bill. As this could not be done before the adjournment of the legislature the matter went by default.

"CHRISTIAN SCIENCE" ABSURDITIES.

At a lecture delivered at the Broadway Tabernacle, before the class for the discussion of present day problems, William A. Purrington, a lawyer, recently laid bare the sophistries and absurdities of "Christian Science" and faith healing. In doing so, he indulged very little in personal comment, but selected his arguments from a consideration of the various statements made by Mrs. Eddy and others high in her "church." He characterized this so-called faith as a product "of ignorance, irreverence, vanity, vulgarity, inconsequence, incoherence, and greed," and asserted that "Christian Science" is the presump-

tuous assertion that in 1866 God revealed to a chronic, hysterical invalid certain truths that for centuries He had hidden from priests and scholars. Like the discoverer of Mormonism, she has a body of apostles, called the Board of Lectureship of the First Church of Christ, Scientist. The lecturer declared that "The cause of the growth of 'Christian Science' lies in the false pretense of the Eddyites to a peculiar divine power of healing all manner of human infirmity." It is well-settled law, however, that the individual's right to believe does not imply a right to manifest bizarre beliefs in acts injurious to the physical and moral welfare of others.

NEW JERSEY.

ON APRIL 4, ninety-two of the insane patients from the lunatic asylum at Trenton were removed to the new home at Bridgeton.

THE ANNUAL report of the directors of St. Michael's Hospital, Newark, shows that 10,294 patients were treated during the year.

THE BOARD of Directors of Muhlenberg Hospital, Plainfield, are planning for the removal of the institution to a more healthful and less noisy part of the town, and have asked for $13,000 for the purchase of a site in the suburbs, on which to erect a modern building.

OHIO.

THE DEDICATION and opening of the Chas. S. Gray Deaconess Hospital, Ironton, took place April 5.

O. C. Barber, president of the Diamond Match Company, has offered to give to the Akron City Hospital $100,000 on condition that the present indebtedness of $15,000 be liquidated.

IN ORDER to increase the efficiency of the Cleveland City Hospital an ordinance is to be introduced in the City Council providing for a chief of staff among the house physicians. He is to receive a salary not to exceed $500 a year and his board.

Cincinnati.

DR. J. J. BRUAR, who has returned from a two-years sojourn in the Klondike, has been re-elected assistant health officer, vice Dr. Morris May, resigned.

AT THE monthly meeting of the Ohio Commandery of the Loyal Legion, April 4, Dr. A. B. Isham read a paper entitled "Cavalry Operations in the Army of the Potomac."

AT THE meeting of the Board of Directors of the Natural History Society, April 3, Dr. M. H. Fletcher was elected president; Dr. Arch. I. Carson, secretary; Drs. F. W. Langdon and A. J. Woodward, members of the executive board.

DR. J. T. WHITTAKER, professor of theory and practice at the Ohio Medical College, who has been a patient of the Good Samaritan Hospital for the past few months, has so far recovered as to be able to be moved to his home in Clifton.

DR. P. S. CONNER, professor of surgery at the Ohio Medical College, on April 3 gave a lecture before the Mathesis Club, on "Medical Men and Medical Teachers in Cincinnati Prior to 1850." He spoke of the medical schools that were in existence at that time, and mentioned many physicians whose reputations were more than local.

THE COMMITTEE on health, of the general council, has been empowered to build an addition to the branch hospital on the Lexington Pike, to provide for patients suffering from contagious diseases. The building will cost about $800.

THE REPORT of the superintendent of the City Infirmary, for the month of March, shows that there were 906 inmates in the institution on April 1. There were 22 admitted during March; 14 died and 20 were discharged.

Toledo.

DR. W. G. COOPER has resigned the position of second assistant superintendent of the Toledo State Hospital, located in this city, and has been succeeded by Dr. George R. Love. Dr. Nelson H. Young has recently been appointed a member of the medical staff.

A NUMBER of Toledo physicians will visit England, Berlin and the Paris Exposition this summer. Dr. Christian Storz will sail on the Hamburg-American steamer *Batavia*, May 5; Drs. James C. Reinhart, William H. Fisher and M. M. Hixon on the North German Lloyd *Kaiser Wilhelm der Grosse*, May 8, and Dr. Charles P. Wagar on the Hamburg-American liner *Deutschland*, June 26.

ILLINOIS.

THE NEW Galesburg sanitarium was formally opened April 6.

THE WESTERN Hospital for the Insane, Watertown, was slightly damaged by fire, April 6.

DR. WALTER RYAN has been appointed consulting surgeon to the Wabash Hospital, Springfield.

Chicago.

DR. RUDOLPH W. HOLMES underwent an operation for appendicitis last week.

BY THE will of the late Albert G. Cone, the Presbyterian Hospital will receive $135,000, and the Chicago Home for Incurables $50,000.

A CONCERT for the benefit of the Passavant Memorial Hospital, April 3, netted the institution $1500.

THE DONATIONS for the proposed hospital for consumptives, under the auspices of the Sisters of St. Elizabeth's Hospital, aggregate $17,147.

THE FINANCE committee of the City Council has taken favorable action on the proposed appropriation of $2000 for an emergency hospital in the downtown district, as advocated by the Medical Woman's Club.

THE MORTALITY of the past week was 572, or 98 less than that of the preceding week. The principal causes of death, in the order of greatest reduction, are pneumonia, consumption, cancer, diphtheria, Bright's disease and bronchitis.

THE COMMITTEE recently appointed to assist in the work of raising funds for enlarging and improving the Presbyterian Hospital has issued a circular requesting subscriptions. Following are the objects for which the funds are desired: A new electric-light plant, $6000; for the ladies' furnishing fund, $3000; for sixteen additional beds, $1000; for a steam sterilizer, $1000; to meet the deficit, $3500.

DISTRICT OF COLUMBIA.

THE REPORT of the health officer for the past week shows the total number of deaths to have been 136, of which number 81 were white and 55 were colored; 39 cases of diphtheria, 59 of scarlet fever, and 1 of smallpox were under treatment.

DR. JAMES S. HAUGH has resigned his position in the local health department, and accepted an appointment in the United States Marine-Hospital Service.

THE REPORT for March shows that in the Central Dispensary and Emergency Hospital new patients numbered 1343; visits, 2279; prescriptions compounded, 3322; emergency cases, 266; ambulance calls, 78; hospital ward cases, 46; deaths, 6; autopsies, 3.

REPRESENTATIVE LITTLE of Arkansas has introduced a bill appropriating $300,000 for a soldier's hospital at Hot Springs, Ark., in which shall be admitted soldiers of all the wars in the United States, including the Spanish-American War, who desire treatment of the peculiar diseases for which the waters of the springs are efficacious.

WOMAN'S CLINIC.

The board of directors and the attending staff of the Woman's Clinic are indebted to Senator Gallinger for the introduction of an item of $2000 in the Senate appropriation bill for maintenance of their clinic. The hospital does excellent work and provides for the treatment of women and children by women physicians. The institution has been in operation since 1891, and up to this year has been self-sustaining, but the work has grown so extensively and the hospital has become so popular that in order to meet the demands on it, the above appropriation has been asked. The women physicians constituting the attending staff have demonstrated their ability to meet every medical emergency and have proved themselves the peers of any medical staff in the country. It behooves all doctors to assist them in obtaining the appropriations asked, and further aiding the growth of their hospital.

UNITED STATES PHARMACOPEIAL CONVENTION OF 1900.

The eighth decennial convention for the revision of the United States Pharmacopeia will be held in this city on May 2. The following physicians are members of the committee of re-

ception and entertainment: Drs. Acker, Atkinson, Ballock, Barnes, Barker, Barton, Bishop, Car, Chappell, Clayton, Collins, Dufour, J. Elliott, L. Elliott, Franzoni, Glazebrook, Harding, Hickling, Holden, Johnson, Kelley, Kober, Kurtz, Leech, Luce, Lynch, Lochboehler, McGee, Mayfield, Morgan, Reisinger, Robbins and Jno. E. Bracket, treasurer. The committee invites $5 subscriptions from those interested in the project, to defray the expense of entertaining the visiting delegates.

MINNESOTA.

AN EXAMINATION was held by the State Board of Medical Examiners, in Minneapolis, April 3, of fifty-six applicants for license to practice in the State.

AT A RECENT meeting in St. Paul, the Ramsay County Medical Society passed a resolution excluding information from the lay press, except at the discretion of the president of the Society.

THE ANNUAL report of the superintendent of the St. Paul City and County Hospital shows that 1667 patients were treated during the year. A new building for contagious diseases and the establishment of a cooking school in connection with the training school for nurses is recommended.

MICHIGAN.

UNIVERSITY HOSPITAL, Ann Arbor, was burglarized to the extent of $200, April 6.

THE PROCEEDS of a recent charity ball, amounting to $1000, will be used to equip the new surgical ward of the Saginaw Hospital.

A TRAINING school for nurses will be introduced into St. Joseph's Hospital Sanitarium, Detroit, as soon as proper arrangements can be made.

HEALTH OF THE STATE.

Including reports by regular observers and others, consumption was reported present in March at 156 places; measles at 203; scarlet fever at 123; typhoid fever at 58; diphtheria at 40; whooping-cough at 33; smallpox at 13, and cerebrospinal meningitis at 13 places. Reports from all sources show consumption reported present at 24 places less; measles at 22 more; scarlet fever at 6 less; typhoid fever at 6 more; diphtheria at 18 less; whooping-cough at 3 less; smallpox at 3 more, and cerebrospinal meningitis at 1 place more, than in the preceding month.

WISCONSIN.

THE ANNUAL commencement of the Milwaukee medical college was held April 3. Thirty-two students received their degrees.

DELAWARE.

THE FOLLOWING named were recently elected officers of the State Board of Health of Delaware: E. W. Cooper, Camden, president; Alexander Lowber, Wilmington, secretary, and Albert Robin, Newark, state bacteriologist.

MASSACHUSETTS.

A NEW home for consumptives, Boston, for which $150,000 is to be appropriated, has been favorably considered by the committee on public charitable institutions.

GEORGIA.

Atlanta.

THE GRADY Hospital Training School for Nurses will hold its first commencement next month. This training school was organized three years ago, and the present class will be the first to receive diplomas.

THE ATLANTA College of Physicians and Surgeons held its annual commencement on April 3, with a graduating class numbering seventy-one. The annual address was delivered by Rev. Charles Downman, President of Emory College. The college will probably start on its four years' course at the beginning of the next session.

QUACKS MUST GO.

The medical profession of the city has taken actively in hand the matter of ridding the city of men who are practicing illegally or are practicing with bogus diplomas. Five true bills have been found by the grand jury, and the men will be tried at an early date. Atlanta has long been infested with the quack and itinerant medico, and this war will be waged for the extermination of all such.

VIRGINIA.

THE CONTRACT for the main building of the new hospital at the University of Virginia has been awarded, and the work of construction will begin at once, the excavation for the foundations having already been made. It will have one of the finest clinical amphitheaters in America. The central building will face East Range and the corridors will parallel the arcade of the row of dormitories.

TENNESSEE.

THE ANNUAL meeting of the State Board of Medical Examiners was held in Nashville, April 3.

COMMENCEMENT exercises of the Tennessee Medical College, Knoxville, were held March 31. Twenty-eight students were graduated.

THE MONTHLY meeting of the Chattanooga Board of Health was held March 30. It was reported that there have been 134 cases of smallpox in the city since the outbreak of the disease, January 1. During March 34 cases were reported, of which number 5 remain in the isolation hospital.

THE COMMENCEMENT exercises of the Medical Department of Vanderbilt University, Nashville, were held April 4. There were 47 graduates.

TEXAS.

DR. C. F. NORTON, El Paso, has been appointed state quarantine officer, to succeed the late Dr. W. M. Yandell.

AS A PRECAUTIONARY measure the governor has issued a proclamation quarantining against yellow fever and prescribing rules of inspection to be maintained by the quarantine officer.

KANSAS.

DR. W. B. SWAN, secretary of the State Board of Health, has issued a bulletin showing that smallpox was reported from thirty-five different localities during March, with a total of 456 cases and 5 deaths. The disease appeared in thirteen new places during the month, and there was great difficulty in getting it under control on account of the insufficient authority of the county boards of health.

A HUMBOLDT carpenter attempted to open a tar barrel, striking one of the heads a heavy blow with an ax. An explosion followed, supposed to be from accumulated gas, and a piece of the barrel head was driven into his forehead, injuring him seriously, probably fatally.

MISSOURI.

THE STATE Board of Health held its quarterly meeting, April 4. Examinations for license to practice were given and delegates were elected to represent the Board at the convention of the National Association of Health Boards.

THE PEOPLE'S Auxiliary Hospital, St. Louis, was formally opened April 2. The institution was established by charitable negroes for the benefit of their race.

AT THE April meeting, in St. Louis, of the Tri-State (Iowa, Missouri and Illinois) Medical Society, there was a very small attendance. The local profession in general is arriving at the conclusion that proper loyalty to the state societies and the AMERICAN MEDICAL ASSOCIATION precludes attendance on the many other supernumerary spring medical meetings.

THE ST. LOUIS medical profession is greatly aroused over the question of a new city hospital. Mass meetings have been held and the city authorities have had evidence that doctors can stand together when vital matters are involved.

CANADA.

NO NEW cases of smallpox have occurred during the last three weeks in New Brunswick, and all the present ones are well under control.

THE RESULTS in the medical examinations at Queen's University, Kingston, have been posted. The graduates number twenty-one.

THE ONTARIO Government has set apart $4000 to assist municipalities in the erection of district sanatoria, throughout the province.

SMALLPOX still continues its ravages in the lower part of the Province of Quebec. Several new cases are reported from Paspebiac, Banaventure County, but they are all of a mild type.

MONTREAL is contemplating the erection of a hospital for consumptives. One of the locations is the top of Mount Royal, but objection is offered to locating such an institution so near the city.

THE MEDICAL health officer of Toronto has been granted three weeks' leave of absence, which he will spend in New York. On his return he will prepare plans for a new smallpox hospital, to be situated on the northeastern confines of the city.

MRS. FLEMING, who has been matron at the Civic Hospital, Montreal, for the past three years and a half, left last week for Cape Nome, Alaska, where she will assume the management of the large hospital being erected in that place.

DR. J. H. ELLIOTT, medical superintendent of the Gravenhurst Sanatorium, now in England, has received an appointment on the expedition dispatched to the west coast of Africa by the Liverpool School of Tropical Diseases, to study malaria.

THERE WERE 248 patients admitted to the Montreal General Hospital during March, and 279 discharged. The daily average has been 176, the largest on any one day being 190. There were 24 deaths during the month, 4165 minor operations and consultations in the out-door department, and 94 ambulance calls.

AT THE Protestant Hospital, Ottawa, on February 28, there were 92 patients in residence. During the month there were 106 admittances, making a total of 198. There were 86 discharged cured, 23 relieved and 1 died; 79 remained in residence on April 1. The hospital was never so largely used as at the present time.

THE FOLLOWING, of St. John, N. B., have been appointed on the staff of the new home for incurables: Drs. Bayard, Travers, Berryman, Christie, P. R. Inches, W. G. Addy, Chas. Holden, W. F. Roberts, F. W. Daniel, Murray Maclaren, T. D. Walker, S. S. Skinner, J. Morrison, Nelson and W. L. Ellis.

FORTY PATIENTS have been admitted to the Protestant Hospital for Insane, Verdun, Que., during the past quarter, and 25 discharged. The deaths numbered 12. The following bequests have been received during the quarter: From the estate of the late Miss Sawtell, $900; estate of E. K. Greene, $1000; estate of A. McIntyre, $450; estate of J. C. Wilson, $900.

SIR WILLIAM MACDONALD, Montreal, on Saturday last wrote his cheque for $200,000 as a gift to the chemistry department of McGill University. A special provision of the donation is that it will provide for ten additional assistants to be chosen from the best available talent graduating from the practical chemistry course; it also especially provides that the teaching of chemistry will be made more available for the teaching faculty of medicine.

THE MACKAY BILL.

During the past week the most important feature in the medical imbroglio of Trinity and Toronto has been the participation of the senate of Toronto University in the fight and the speech of Dr. MacKay in the legislature on moving the second reading of his bill, noted at length in recent issues of THE JOURNAL. The provincial university authorities have taken a strong ground in the matter and have interviewed the government in order to press upon them, as they think, the advisability of allowing affairs to continue as they at present exist. It is pointed out on behalf of the continuance of the present medical department of the University, as at present constituted, that the students of Trinity have equal right with the other students, in that, if they so elect, they may register as occasional students with the Toronto faculty, and so avail themselves of the privileges of the provincial university. Of course it is a very likely thing that any teaching body like Trinity will advise her students to take their lectures from a rival medical faculty, and be accorded no share in the examination of those students. In his speech in the legislature, Dr. Mackay made out a strong plea for his bill. That is generally conceded. The Hon. the Minister of Education, Mr. Harcourt, opposed it and championed the cause of the provincial university and the medical department. Altogether, it would seem that there is an effort being put forward to becloud the issue, and not to have it fought out on its just merits, as side issues are being continually hauled in to do service, when they are very far removed from the thoughts of the adherents of the measure. An adjournment of the debate was moved by the Premier, the Hon. Mr. Ross, the ex-minister of education, and it will probably be up for discussion again the beginning of the week. No doubt it will be referred to the private bills' committee, where each will have a better opportunity of explaining their reasons *pro* and *con*, for the legislation. This would be a fair and just procedure, as if any good can be accomplished that will redound to the advantage of the provincial university, and at the same time be a means of forever redressing the grievances against past legislation of the university, it ought in all fairness be accorded to all parties in the present campaign.

GYNECOLOGY AMONG THE INSANE.

In the annual report of the Inspector of Lunatic and Idiot Asylums for Ontario, for 1899, an interesting part is that relating to the gynecologic surgery in the female insane in the asylum at London, Ont., the avowed exponent of this work in Canada. It is now some five years since this work was first introduced into that institution, where it has been prosecuted systematically ever since. Engendered with some doubt and carried on in a somewhat tentative character, it has there come to be looked on as a necessary branch in the treatment of the female insane. During the past year, 40 patients have been operated on. Of these, 14 have recovered, 14 are improved, 1 died, and so far 11 remain unimproved, though it is stated that several of these latter have but just recently been submitted to operations, and there seems to be no doubt that several will either improve or recover completely. A summary of the work of the past five years, which embraces all the gynecologic work performed since its inception, shows that 217 patients have been examined, in 185 of whom organic disease of some one or more of the pelvic organs was found, thus leaving 32 of the number examined absolutely free from disease. Of these 185 patients, 171 have been operated upon, leaving 9 others to be attended to, while there are 5 the subjects of organic disease, considered unsuitable for operation. Of the 171 operated on, the pathologic conditions present (several often in one case) were 17 cases of dysmenorrhea or menorrhagia; 80 with disease of the endometrium; 90, subinvolution of uterus; 35, hypertrophied cervices; 44, lacerated cervices; 27, cystic cervices; 5, polypi of cervix; 14, uterine fibroid; 1, epithelioma of cervix; 1, sarcoma of uterus; 55, retroversion of uterus; 6, complete procidentia of uterus; 31, ovarian tumor, often with disease of the tubes; in 35 there were perineal injuries; in 1, rectovaginal fistula; in 1, ischiorectal fistula. This gives a total of 444 diseased conditions in 171 patients. The operations performed, often several in one case, were as follows: Curettage and divulsion, 132 times; operations on cervix, 53; suspension of displaced uterus, 50; ovariotomy, 22; hysterectomy, 21; perineorrhaphy, 26; laparotomy for tubercular peritonitis, 2; operation for hematoma of ovarian ligament, 1; myomectomy, 2—a total of 309 operations. As regards the after mental health, 70 patients recovered from their insanity; in 43 others there has been improvement, often very marked in the general health; in 54 there has been no improvement in the mental health. Thus it will be seen that 113 of the 171 who survived the operation (four died as a result of it) either recovered their mental health or had it improved to a considerable extent. A further interesting part of the report is the average recovery rate, including cases improved, in the female halls of the asylum during the four years, 1892-1895, as with that during the four years from 1896-1899. In the former period, the rate calculated on the whole number under treatment each year, was 4 per cent.; whilst for the four years after the operative work had become a factor, it rose to 5.55 per cent. Dr. A. T. Hobbs is the assistant, in the asylum, who carries on this work.

Medical London.

SOUTH AFRICAN DISEASES.

Ever since the Transvaal War broke out there has been keen interest here as to the climate and diseases of South Africa, and the recent meetings of the Committee on Geographical Pathology, at the London Polyclinic, have been chiefly occupied with these subjects. Dr. Alfred Hillier, who was for a number of years in active practice in the Transvaal and Orange Free State, and at one time in partnership with Dr. Jameson of the "Raid" notoriety, opened the discussion with a description of the climate and principal diseases. He brought out most clearly that—as we are rapidly learning of late years, all over the world—the "unhealthiness" of a climate depends not on temperature or moisture but on the degree of prevalence of certain diseases which might almost be reduced to two, malaria and typhoid. As the high central tableland which forms the greater part of the country is almost exempt from malaria, the only serious and at all widely prevalent diseases are those imported by the settlers themselves—typhoid and diphtheria. This has been strikingly confirmed by the experience of the troops so far, as nearly 60 per cent. of their death-rate by disease has been caused by typhoid, 800 cases of the fever being found in Ladysmith alone, when the siege was raised. That the whole of it is due to defective sanitation and polluted water-supply is shown by the fact that it is almost exclusively a disease of towns and villages, cases on isolated farms and in the open country generally being almost unknown. So the Afrikander has to a large extent his physical fate in his own hands. This is especially true in view of the fact that tuberculosis as an indigenous disease is practically unknown. Dr. Hillier has never met with a case in a Boer or a native Afrikander, and with only a very small number which originated in South Africa in European settlers; all of the latter were believed to be due to direct contagion from consumptives who had gone there for the climate-cure.

DIPHTHERIA AND ELEVATION.

An interesting peculiarity is the apparent effect of elevation on diphtheria, Dr. Hillier stating that he has never met with the disease at an elevation above 3000 feet. In Kimberly, for instance, which is slightly below this elevation, the disease is frequent, while at Johannesburg, with an elevation of over 4000 feet, it is almost unheard of. In several years' active practice in the latter place, Dr. Hillier had not met a case.

DISADVANTAGES OF SOUTH AFRICAN CLIMATE.

Like everything mundane, the climate, though clear, bracing and healthful to a degree, has its drawbacks. It is liable to fearful dust storms which are frequently followed by acute pneumonias, apparently due to the mechanical irritation of the quantities of fine, flour-like, red dust inhaled. A similar effect may also be produced on the bowels, by the more than "peck of dust" swallowed on food, every article of which, no matter how protected, becomes sifted over with a thick layer. This gives rise to a "dust dysentery" of most irritating and weakening type, though fortunately usually self-limited and free from serious complications.

Another drawback, very real to an unfortunate few, is that washing of the face and neck must be strictly limited to the absolutely necessary. Otherwise most unpleasant reddening and fissuring of the skin leading to chronic eczematous conditions will develop. Water can no longer be used on the skin *ad libitum;* indeed, in most cases, the general rule has to be adopted of never washing between sunrise and sunset, and this has become an accepted habit with most colonials of experience, though it took years to make an Englishman believe that cleanliness could ever be otherwise than a virtue and a benefit. Indeed, the Boer name for an Englishman, *rooinek* or "red neck," was given because he was always washing himself and had a raw, red and itching neck and face in consequence, a habit from which the Boer himself found not the slightest difficulty in refraining.

TEETH OF SOLDIERS.

The teeth of the recruit have again been alarming the country. This time it is on the naval side, where in answer to a member's question, Mr. Goschen, the present "Ruler of the Queen's Navy," stated that probably as many as 25 per cent. of the rejections were on account of defective teeth. Of army recruits only 7.7 per cent. of those rejected were refused on this ground, and it was explained that the conditions of service afloat—presumably the long cruises and harder, drier food—made a higher standard of dental perfection necessary in sailors. If this statement leads to an adoption of a proposal already before the House for the appointment of official dentists to every public school, it will be an incalculable benefit to the country. The condition of the teeth of the English working classes is decidedly poor, worse than anything to be found in that supposed home of early dental decay, America, and goes far to shake our faith in the venerable superstition that the human tooth is degenerating under civilization and modern diets.

ARMY MEDICAL DEPARTMENT.

The medical department of the army came in for its first public discussion in Parliament this week, and the result was a positive ovation. A prominent member declared that it had been the success of the war, and the under secretary for war, Mr. Wyndham, one of the most prominent personalities in England at present and the official representative of the war office in the House, "could not pay too high a tribute to the fortitude, courage and efficiency which has been displayed by the medical officers. They were not exalted by the joy and intoxication of battle; they were sustained by their devotion to suffering humanity alone and this rendered their services all the more heroic." This ought to make it plain even to the intelligence of a general that, if he persists much longer in his pig-headed and supercilious refusal to recommend more medical men for the Victoria Cross, he will have to reckon with the war office as well as with an already indignant public.

CANDIDACY OF PROF. WM. OSLER.

The candidacy of Professor Osler, of Baltimore, Md., for the chair of medicine in the University of Edinburgh, left vacant by the death of Sir T. Grainger Stewart, is looked on with universal favor here. It is believed that owing to the nearly equal division of local support between Dr. Byron Bramwell and Dr. John Wyllie, and consequent high feeling, the chances of a selection of an outsider are extremely good, and of outsiders Professor Osler is far the likeliest choice. To be elected a second time to a foreign chair would be a high honor indeed, and while America would deeply regret his loss personally, yet the compliment paid to the standing of the medical profession through one of its leading representatives would go far to balance this. It would also be a most graceful demonstration of the practical cosmopolitanism of science and the unity of the English-speaking races all over the world. [Dr. Osler's declination of this call was noted in last week's JOURNAL, p. 885. ED.]

BOER THERAPEUTICS.

The closer we come to our cousin, the Boer, the more extraordinary survival, brave fighting man as he has shown himself, does he appear to be, not merely of medieval, but positively marsupial times. The rooted distrust of European physicians and their treatment, reported by one correspondent after another as felt by the Boer, which seemed at first almost incredible, begins to be comprehensible when we learn something of his own preference in the way of household remedies. His prime favorites, according to a writer in the *Chemist and Druggist*, are purgatives, the more energetic the better, and one of these is administered as a routine first step in every case of illness. Next on his list comes such cheerful vestigia as *heasjepis*, the secretion of the scent-glands of the Cape Hyrax, or so-called "rock rabbit," and *klipsweat* or "rock sweat," a curious secretion which accumulates in the crevices of certain rocks and was originally believed to be the dung of bats, but is now regarded as the secretion of certain insects. A species of Indian hemp, the wax of the Cape myrtle and a choice selection of the crudest of Harlem oils, "crown essences," and black pills complete the equipment of the *Huis Apoteck* or family medicine chest. One deliciously primitive instance is related from the writer's own experience, of a patient who, having run the gamut of the medicine chest without relief, was wrapped in the warm skin of a freshly killed goat.

COMPLIMENT TO MEDICAL PROFESSION.

A graceful compliment has been paid to the profession by the election of Dr. Wm. C. Church, president of the Royal College of Physicians, to the membership of the "Athenæum" Club on the ground of "distinguished scientific attainments." The Athenæum is one of the most distinguished and exclusive clubs in London, the "celebrities" club par excellence, and admission to it is considered one of the blue-ribbons of intellectual London. Lord Lister is already a member.

DEATH-RATE OF TROOPS.

The low death-rate from disease among the British troops in South Africa has been widely commented on as one of the triumphs of modern sanitation. Of the total deaths to date barely over one-fourth have been due to disease and about one-half of these to typhoid. In view of the fact that typhoid is epidemic in nearly all the towns of Natal and Cape Colony used as camp sites, its prevalence has been remarkably limited, sufficiently so to distinctly support the claim that the anti-typhoid inoculations so widely carried out on the troops by Professor Wright of Netley and the army medical officers are giving positive results. Nearly 6 per cent. of the troops sent out from England are said to have voluntarily submitted to inoculation, and the results from Professor Wright's 3000 inoculations in the army of occupation in India last year have certainly given most encouraging results. Ludicrously enough the wide-spread vaccinations against typhoid among the troops sent out were denounced by the "antis" as the cause of the disasters to the British arms at Stormburg, Magersfontein, etc., by dulling the senses and depressing the vitality of the soldiers so that they walked right into the traps laid for them, like men dazed.

MALARIA INVESTIGATIONS.

The public mind here is getting thoroughly stirred up to the importance of the antimalarial movement headed by Manson and Ross. Especially is this true since the publication of Major Ross' letter showing that in India alone 5,000,000 deaths per annum occur from fever," chiefly malarial and that of the 178,000 men composing the Indian army, 75,800 or 45 per cent. were admitted to hospitals for malaria during the year 1899. The new malaria expedition which has just started for Nigeria, from the Liverpool School of Tropical Medicine, will be watched with the keenest interest, as will also the experiments of the London school in the Roman Campagna during the coming summer. The idea of having infected mosquitoes brought home to bite devoted English experimenters who have volunteered for the service was not only sound science but also a finely dramatic object-lesson to the popular mind and has 'caught on" immensely. Dr. Manson's gift of terse and vivid epigram is also of great service in impressing the facts of the situation on the lay mind. His characterization of the sanitary work of tropical medicine against malaria, typhoid and the plague as "a campaign of the mosquito-net, the tea-kettle and the rat-trap" has spread far and wide, and this recent pithy sentence that "quinin kills the malaria parasite as surely as arsenic does a rat" is scarcely less happy.

PIGMENTS AND THE SKIN.

Some most interesting results have recently been reported at the London Polyclinic, by Dr. Robert Bowles, in reference to the effects of pigments in preventing sunburn, cracking and other exposure-effects on the skin. He has found that in many cases of sensitive skins which burned, chapped and became even eczematous on exposure, and were not relieved in the slightest by ordinary salves, lotions and creams, the addition of a small amount of pigment to the protective application would check the irritation at once and permit exposure with impunity. This was most strikingly seen on the glaciers and snow-flats of the Alps, where tourists are frightfully annoyed by sunburn, which can be completely prevented by coating the face lightly with a film of any pigmental salve or paste. For convenience, he has generally employed the ordinary grease paints used by actors in "make-up." Other experiments have been varied and controlled by painting the face in patches, leaving one side smeared but not colored, etc., and invariably with the same result, i. e., the pigment covered areas escaped all unpleasant effects while the uncovered patches were severely burned. The color of the pigment seemed to matter little, although red-browns and browns were extremely effective. The hint has been taken by dermatologists in pityriasis, summer prurigo, summer eczema, and the various forms of eruptions which are worse in hot weather, and with the most gratifying results. Mr. Malcolm Morris has recently reported (*The Polyclinic*, January, 1900) the great relief afforded in cases of summer prurigo, by the simple addition of bole Armenian, a vegetable pigment used by actors, to salves which before had given little or no benefit. Contrary to the general impression, it is not the heat, but the chemical action of sunlight which so intensely irritates the skin, and this explains the torturing effects of reflected light from snow or ice on both skin and conjunctiva, and the relief given by colored glasses, etc. It also opens up a most interesting question as to the precise value of pigment in the human epidemics, especially in the races inhabiting the tropics, and also throws new light on the custom of smearing the skin with pigmented oils and greases, colored clays, etc., to which so many savage tribes are addicted, and which formerly seemed so utterly irrational.

NEED OF HOSPITAL REFORM.

An effective little illustration of the need of hospital reform has just been furnished in the police courts, by an action brought by one hospital patient against another. The complainant alleged that he had been robbed, in the Charity Cross Hospital, of a gold watch and chain, a silver match box, a gold ring and a diamond scarf-pin, altogether valued at $200. No mention is made of a check book or coupons, but one can not help wondering what were the circumstances which justified the admission of a patient with all this ornamentation in plain view into the charity wards. One can imagine many emergencies in which really destitute and deserving patients who were still well-dressed might be admitted to the wards, but such finery ought surely to be left at home, if only for appearances, to say nothing of the temptation placed before poorer patients.

RETURN OF INVALIDED SOLDIERS.

Another transport has just landed its contingent of invalided soldiers at Southampton, with the same cheering record, which has grown so familiar, that out of nearly 180 patients there are only seven "cot cases," the remainder having made rapid progress toward recovery during the voyage. Owing to this high recovery rate on the home voyages the military hospitals have never yet been overcrowded, although the actual accommodations in existence when the war broke out were regarded as entirely inadequate, and hospitals all over London were approached as to how many beds they could spare for soldiers. Once more the utter unpreparedness of the war office has escaped, by sheer luck, the disaster which it invited, even the distance from the scene of war and the slowness of the transports working in its favor. It would not accept nor even acknowledge with thanks the stream of offers of beds from local hospitals, sanatoria, and even private houses, which poured in from all over the country, and now even its stupidity is going to be counted unto it for righteousness.

Correspondence.

The Journal and Ethical Preparations.

NEW YORK CITY, April 3, 1900.

To the Editor: Having noticed, in an editorial in THE JOURNAL of March 31, your determination to somewhat curtail the number and character of advertisements in THE JOURNAL it occurred to me that you were entitled to a word of encouragement, congratulations and best wishes from the advertisers of legitimate remedies, as well as from the members of the ASSOCIATION and the profession generally. That THE JOURNAL should refuse further to encourage or give countenance to the nostrum is as it should be. Representing the most august body of medical men in the United States, voicing the sentiments and scientific thought of these men, who should head the list of individuals and organized societies in all that appertains to ethics or good morals; alive to the protection of its members

and the profession generally, as well as to humanity, it should be first to show its earnestness in all that appertains to their welfare. As the conservators of public health, the associations and physicians generally have a broad humanitarian duty toward those who look to them to guard their interests. In this sense the physician is his brother's keeper. If you protect the members of the associations, through them you protect the uninformed public. So long as there is a suffering humanity there will be those who prey on their credulity for money. Any educated physician must realize the worthlessness, nay the positive harmfulness of these secret products, made usually from their own prescriptions without a knowledge of why they were originally prescribed, compounded by unscientific men, and offered for all manner of troubles, when if the truth was known the combination or its individual parts, if not actually contraindicated, are useless in most instances.

Now what character of products should be acceptable to the advertising pages of a standard medical journal? There should be but two classes: 1. Definite chemical products; those with an identity which can be expressed in symbols or terms according to chemical nomenclature. 2. Compatible mixtures whose formulæ are given in the body of the advertisement each time it is printed. The formulæ should give the quantities of each ingredient to a given portion, and be so expressed that it is intelligible to the physician. There should be no occult knowledge necessary to compound such a preparation; no statement that "by a process known only to the manufacturers the preparation can be made as offered by them." Nor should a list of the ingredients furnished without the quantities clearly expressed be sufficient, and when this is given let it show in full. Do not pigeon-hole the formula and notify your readers in an editorial that the formula is in your possession and that it will be sent (privately) to any one interested; while, when it is received, they find that it not only does not give the exact quantity of each ingredient used to a given portion, but that it is expressed so obscurely that the reader is no better informed than before securing it. I believe that there would be less substituting if such a policy were strictly adhered to by all medical journals. The druggist resents the imposition of secrecy which is so often a cloak for fraud, as much or more than does the physician, for it clearly implies his incompetency; besides, the physician will not cease to use these products, but will all the more insist on his prescription being dispensed from those whose identity and character they clearly understand, and in which they have confidence. We will thus secure the co-operation of both the professions, that of medicine as well as of pharmacy.

It must appear that in the end both professions will benefit; legitimate and scientific remedies only will be used, and the public soon become an unconscious factor in bringing about this most desirable end, for when they more clearly realize, as they will (for the public is quick to learn when the proper means are employed), that individual persons and individual complaints require individual treatment, that no stock prescription, however scientifically it may be prepared, will answer for the same disease in different individuals much less answer as a cure for a multitude of complaints, they will seek such remedies and from such people as will secure to them the best results, in the same way as they purchase merchandise.

J. W. WAINWRIGHT, M.D.

Proposed Leper Law.

LOS ANGELES, CAL., March 27, 1900.

To the Editor: In THE JOURNAL of March 17, p. 694, you say, in regard to the proposed leper law:

It is a question whether leprosy, which numbers among its victims only a few hundred at most in this country, is a sufficiently threatening danger to warrant or call for the elaborate and expensive provisions of this bill. . . . Leprosy does not seem to flourish here. New cases that originate among us are rare. . . . If matters are much worse than here assumed, some such measure as the proposed one may be advisable.

While there is no call for excitement or hysterical action in the matter, it does seem to me that the proposed leper law will fill "a long-felt want." Considering the nature of the disease, are not "only a few hundred lepers in this country" a great menace to the health of the country at large?

Were the disease generally prevalent, we should be alive to it and the necessity of provision against it; we should all be more or less familiar with the more common phases of the disease, but, as it is, individuals have no certainty that they shall not come in contact with the disease; get it from some straggler or another that comes their way. It is not so much the danger of an epidemic that we should provide against, as the general liability to contagion in hotels and other public places. An isolated case was reported here last week. Dr. McDougal reports two cases in Lexington, Ohio, and another is reported from Philadelphia, of a leper that came from Barbados through Canada. I could go on indefinitely, stating cases that have come to the notice of physicians here and there throughout the mainland. I consider that it is the duty of the state and national governments to protect citizens from unnecessary exposure to all contagious disease, and it would be time to act if there were only one case of leprosy in the whole United States.

The person or persons to whom this particular leper would be a danger make a special provision imperative, no matter whether the disease spread further or not. This applies, less urgently perhaps, but still it applies, to syphilis and tuberculosis. And some day we shall wonder why we were so long indifferent to wise legislation in the matter. The expenditure of money is nothing compared with the extension of such a disease even to one individual. We think nothing of spending money in other directions; and the protection of our citizens from disease, in other words, medical legislation, is one of our first duties.

As to the spread of leprosy in a temperate zone, learned men differ. Why should not the disease increase here as well as in similar latitudes in Europe? Perhaps the cycle has not reached, but it may come. And if matters may be "much worse" here than we know, surely it is time for us to find out exactly the real condition of affairs in the country.

E. S. GOODHUE, M.D.

Association News.

Annual Announcement.

The fifty-first annual session (53d year) of the AMERICAN MEDICAL ASSOCIATION will be held in Atlantic City, N. J., on Tuesday, Wednesday, Thursday and Friday, June 5, 6, 7 and 8, commencing on Tuesday at 11 a. m.

REGARDING REPRESENTATION.

The delegates shall receive their appointment from permanently organized State medical societies, and such county and district medical societies *as are recognized by their respective State societies*, and from the medical departments of the Army and Navy and the Marine-Hospital Service of the United States.

Each State, county and district medical society entitled to representation shall have the privilege of sending to the ASSOCIATION one delegate for every ten of its regular resident members, and one for every additional fraction or more than half that number; *Provided*, however, that the number of delegates from any particular State, Territory, county, city or town shall not exceed the ratio of one in ten of the resident physicians who are entitled to membership.

PERMANENT MEMBERS.

The permanent members shall consist of all those who have served in the capacity of delegates, and of such other members as may receive the appointment by unanimous vote, and shall continue such so long as they remain in good standing in the body from which they were sent as delegates, and comply with the requirements of the By-Laws of the ASSOCIATION, so long as they shall continue to conform to its regulations, but without the right of voting; and, when not in attendance, they shall be authorized to grant letters of introduction to reputable practitioners of medicine residing in their vicinity, who may wish to participate in the business of the meeting, as provided for members by invitation.

MEMBERS BY APPLICATION.

Members by application shall consist of such members of the State, county and district medical societies entitled to representation in this ASSOCIATION as shall make application in

writing to the Treasurer, and accompanying said application with a certificate of good standing, signed by the president and secretary of the society of which they are members, and the amount of the annual subscription fee, $5. They shall have their names upon the roll, and have all the rights and privileges accorded to permanent members, and shall retain their membership upon the same terms.

REGISTRATION AT MEETING.

Each delegate or member, when he registers, is requested to record the name of the Section, if any, that he will attend, and in which he will cast his vote for Section officers.

SECTION OFFICERS.

The Chairman of each Section shall prepare an address on the recent advances in the branches belonging to his Section, including such suggestions in regard to improvements or methods of work as he may regard important, and present on the first day of its annual session the same to the Section over which he presides. The reading of such address not to occupy more than forty minutes.—By-Laws.

PRESENTATION OF PAPERS.

A member desiring to read a paper before a Section should forward the paper or its title and length (not to exceed twenty minutes in reading) to the Secretary of the Section at least one month before the annual meeting at which the paper or report is to be read.

No paper shall be read by title in any Section which is not actually in the hands of the officers of the Section.

No paper shall be placed on record for the consideration of any Section unless an abstract or précis of not less than 50 nor more than 300 words accompanies the title and is placed in the hands of the Chairman or Secretary of the Section at least thirty days before the time of meeting of the Section.—By-Laws.

ORATIONS.

The following annual orations will be delivered: On Medicine, John A. Witherspoon, Nashville; on Surgery, W. L. Rodman, Philadelphia; on State Medicine, Victor C. Vaughan, Ann Arbor.

Chairman Committee of Arrangements, Philip Marvel, Atlantic City, N. J.

PROPOSED AMENDMENTS.

Amendment to the Constitution and By-Laws offered by the Committee on Medical Legislation:

Section 3, Standing Committees.—The committee on legislation shall consist of three members: one of whom shall be a resident of Washington, one of Baltimore and one of Philadelphia. It shall be the duty of this committee to represent before Congress the wishes of this ASSOCIATION, regarding pending medical and sanitary legislation. This committee shall also invite to an annual conference to be held at Washington, one delegate each from the army medical service, the navy medical service, the marine-hospital service and from each State society of legally qualified practitioners of medicine; such conference to consider questions of national medical and sanitary legislation and report to their representative bodies for actions.

In By-Laws, Section 3, Standing Committees, insert after "board of trustees" the words, "committee on legislation," and after the duty of "boards of trustees" the following clause: "The committee on legislation shall report annually to this ASSOCIATION its action during the previous year and shall recommend to the ASSOCIATION such action regarding pending legislation as it shall deem proper.

Amendment to the Code of Ethics offered by Dr. Q. C. Smith, Austin, Texas:

Article 4, Section 9.—Be it

Resolved, That attending physicians are entitled to charge a consultation fee for each consultation, in addition to visit fee, equal in amount to that ordinarily charged in similar cases by consulting physicians residing in the same city, locality or community where the service may be rendered.

OFFICERS OF SECTIONS.

Practice of Medicine—George Dock, Ann Arbor, Mich., Chairman; T. B. Futcher, Baltimore, Secretary.

Surgery and Anatomy—H. O. Walker, Detroit, Mich., Chairman; Ramon Guitéras, New York City, Secretary.

Obstetrics and Diseases of Women—W. E. B. Davis, Birmingham, Ala., Chairman; F. F. Lawrence, Columbus, Ohio, Secretary.

Materia Medica, Pharmacy and Therapeutics—Leon L. Solomon, Louisville, Ky., Chairman; J. W. Wainwright, New York City, Secretary.

Ophthalmology—H. V. Würdemann, Milwaukee, Chairman; C. F. Clarke, Columbus, Ohio, Secretary.

Laryngology and Otology—Christian R. Holmes, Cincinnati, Chairman; J. A. Stucky, Lexington, Ky., Secretary.

Diseases of Children—Edwin Rosenthal, Philadelphia, Chairman; Louis Fischer, New York City, Secretary.

Physiology and Dietetics—Elmer Lee, New York City, Chairman; R. Harvey Cook, Oxford, Ohio, Secretary.

Neurology and Medical Jurisprudence—Hugh T. Patrick, Chicago, Chairman; F. S. Pearce, Philadelphia, Secretary.

Cutaneous Medicine and Surgery—L. Duncan Bulkley, New York City, Chairman; R. R. Campbell, Chicago, Secretary.

State Medicine—W. C. Woodward, Washington, D. C., Chairman; Armand Ravold, St. Louis, Secretary.

Stomatology—M. H. Fletcher, Cincinnati, Chairman; Eugene S. Talbot, Chicago, Secretary.

MEDICAL SOCIETIES ENTITLED TO REPRESENTATION IN THE AMERICAN MEDICAL ASSOCIATION APRIL 14, 1900.

In accordance with the Constitution, this list is prepared as certified by the secretaries of the State and Territorial medical societies.

ALABAMA.

Alabama State M S., and all County Societies.

ARIZONA.

Arizona Territory M. A.
Maricopa County M. S.
Pima County M. S.
Yarapai County M. S.

ARKANSAS.

Arkansas State M. S.
Baxter County M. S.
*Benton County M. S.
*Boone County M. S.
*Craighead County M. S.
Crawford County M. S.
*Eureka Springs, Carroll County M. S.
*Hempstead County M. S.
Hot Springs M. S.
*Independence County M. S.
*Jefferson County M. S.
Lee County M. S.
*Little Rock M. S.
Phillips County M. S.
*Polk County M. S.
Sebastian County M. S.
Washington County M. S.
*White County M. S.

CALIFORNIA.

M. S. State of California
Alameda County M. S.
California Acad. of Med.
*California Northern District M. S.
El Paso M. S.
Fresno County M. S.
Humboldt County M. S.
Kern County M. S.
Lake County M. S.
*Los Angeles County M. S.
Marin County M. S.
Medico-Chirurg. M. S.
*Monterey County M. S.
Orange County M. S.
Pasedena M. A.
Placer County M. S.
Pomona Valley M. S.
Riverside County M. S.
San Diego County M. S.
Sarcamento S. for Med. Improvement.
San Bernandino County M. A.
San Francisco County M. S.
San Francisco Clin. S.
San Joaquin County M. S.
San Joaquin Valley M. S.
San Louis Obispo and Northern Santa Barbara County M. A.
Santa Barbara County M. S.
Santa Clara County M. S.
Santa Cruz County M. S.
*Society of German Physicians of San Francisco
Sonoma County M. S.
Southern California M. S.
Tulare County M. S.
Ventura County M. S.
Yolo County M. S.
Yuba and Sutter Counties M.S.

COLORADO.

Colorado State M. S.
Alumni Ass'n of the Gross M. College.
Cripple Creek M. S.
Denver Clin. S.
Denver Clin. and Path. S.
Denver and Arapahoe M. S.
Denver Med. Col. Alumni Association.
El Paso County M. S.
Fremont County M. S.
Lake County M. S.
*Larimer County M. S.
Las Animas County M. S.
Morgan County M. S.
*Otero County M. S.
Pueblo County M. S.
Weld County M. S.

CONNECTICUT.

Connecticut State M. S.
*Bridgeport M. A.
*Danbury M. A.
Fairfield County M. A.
Hartford County M. A.
Hartford M. S.
Litchfield County M. A.
Middlesex County M. A.
New Haven County M. A.
New London County M. A.
Norwich M. A.
*Stamford M. S.
Tolland County M. A.
*Waterbury M. A.
Windham County M. A.

DISTRICT OF COLUMBIA.

Med. Ass'n of D. C.

DELAWARE.

Delaware State M. S.

FLORIDA.

Florida State M. S.
Alachua County M. S.
Duval County M. S.
Hillsborough M. S.
Osceola County M. S.
St. John County M. S.

GEORGIA.

Georgia State M. A.
Atlanta Soc. of Med.
Macon M. S.

IDAHO.

Idaho State M. S.

ILLINOIS.

Illinois State M. S.
Adams County M. S.
Æsculapian S. of Wabash Valley.
Aurora M. S.

Belleville M. S.
Brainard Dist. M. S.
Bond County M. S.
Bureau County M. S.
Cairo M. S.
Calhoun County M. S.
Capital Dist. M. S.
Central Dist. M. S.
Champaign County M. S.
Chicago Acad. of Med.
Chicago Gynecological S.
*Chicago Laryngological Soc.
Chicago M. S.
Chicago Medico-Legal S.
Chicago Neurological S.
Chicago Ophthal. and Otol. S.
Chicago Orthopedic S.
Chicago Pathological S.
*Chicago Pediatric Society.
Chicago Physicians' Club.
Chicago Soc. Internal Med.
Chicago Soc. Med. Examiners.
*Chicago Therapeutic Society.
Clay County M. S.
Clinton County M. S.
Coles County M. S.
*County Hosp. Alumni S.
Crawford County M. S.
Decatur M. S.
Dewitt County M. S.
Douglas County M. S.
E. St. Louis M. S.
Egyptian M. S.
Fox River Valley M. S.
Fulton County M. S.
Galva Dist. M. S.
Galesburg M. S.
Gallatin County M. S.
Green County M. S.
Hancock County M. S.
Hardin County M. S.
Iowa and Ill. Cent. Dist. M. S.
Jackson County M. S.
Jacksonville Med. Club.
Jersey County M. S.
Kankakee County M. S.
Lake County M. S.
La Salle County M. S.
Lawrence County M. S.
Macoupin County M. S.
Marion County M. S.
Massac County M. S.
McDonough County M. S.
McLean County M. S.
Med. and Sur. S. of Western Ill.
Military Tract M. A.
Monroe County M. S.
Morgan County M. S.
Moultrie County M. S.
North Central Illinois M. S.
*North Chicago M. S.
Ogle County M. S.
Ottawa City M. S.
Peoria M. S.
Peoria County M. S.
Perry County M. S.
Pullman Dist. M. S.
Quincy Med. and Lib. Ass'n.
Rock River Valley M. A.
Saline County M. S.
*Sangamon County M. S.
Scandanavian M. S. Chicago.
Scott County M. S.
Shelby County M. S.
Southeastern Illinois M. S.
Southern Illinois M. S.
*Springfield Med Club.
St. Clair County M. S.
Stephenson County M. S.
Tri-County M. S.
Twin City Clin. Ass'n of Champaign and Urbana.
Vermillion County M. S.
Wabash County M. S.
Warren County M. S.
Washington County M. S.
Western M. and S. S.
White County M. S.
Whiteside County M. S.
Williamson County M. S.
Winnebago County M. S.
Woodford County M. S.
Will County M. S.

INDIANA.

Indiana State M. S.
Allen County M. S.
Bartholomew County M. S.
Benton County M. S.
Blackford County M. S.
Boone County M .S.
Carroll County M. S.
Cass County M. S.
Clark County M. S.
Clay County M. S.
Daviess County M. S.
Dearborn County M. S.
Decatur County M. S.
Dekalb County M. S.
Delaware County M. S.
Dubois County M. S.
Elkhart County M. S.
Fayette County M. S.
Floyd County M. S.
Fountain County M. S.
Franklin County M. S.
Gibson County M. S.
Grant County M. S.
Greene County M. S.
Hamilton County M. S.
Hancock County M. S.
Hendricks County M. S.
Henry County M. S.
Howard County M. S.
Huntington County M. S.
Jackson County M. S.
Jay County M. S.
Jefferson County M. S.
Jennings County M. S.
Johnson County M. S.
Knox County M. S.
Kosciusko County M. S.
Lagrange County M. S.
*Lake County M. S.
Laporte County M. S.
Lawrence County M. S.
Madison County M. S.
Marion County M. S.
Marshall County M. S.
Martin County M. S.
Miami County M. S.
Monroe County M. S.
Montgomery County M. S.
*Morgan County M. S.
Newton County M. S.
Noble County M. S.
Orange County M. S.
Owen County M. S.
Parke County M. S.
Perry County M. S.
Pike County M. S.
Porter County M. S.
Posey County M. S.
Putnam County M. S.
Rush County M. S.
Randolph County M. S.
Ripley County M. S.
Shelby County M. S.
St. Joseph County M. S.
Steuben County M. S.
Sullivan County M. S.
Switzerland County M. S.
Tippecanoe County M. S.
Tipton County M. S.
Vanderburg County M. S.
Vigo County M. S.
Wabash County M. S.
Warrick County M. S.
Washington County M. S.
Wayne County M. J.
Wells County M. S.
White County M. S.
Whitley County M. S.

INDIAN TERRITORY.

Territorial Ass'n.

IOWA.

Iowa State M. S.
Austin Flint M. S.
Blackhawk County M. S.
Boone Valley M. S.
Botna Valley M. S.
Buchanan County M. S.
*Cedar Rapids M. S.
Cedar Valley M. S.
Central District M. S.
Cherokee County M. S.
Clark County M. S.
Clinton County M. S.
Council Bluffs M. S.
Dallas County M. S.
Delaware County M. S.
Des Moines County M. S.
*Des Moines Valley M. S.
Dubuque M. S.
*Eastern Iowa M. S.
Fayette County M. S.
Fort Dodge M. S.
*Fremont County M. S.
Gate City M. S.
*Guthrie District M. S.
*Hummiston & Shenandoah M.S.
Iowa Central M. S.
*Iowa Union M. S.
Iowa and Illinois M. S.
Jasper County M. S.
*Jefferson County M. S.
*Johnson County M. S.
Julien M. S.
*Julien Med. & Surg. Ass'n.
*Keokuk County M. S.
*Keokuk M. S.
Lyon County M. S.
Missouri Valley M. S.
Mitchell County M. S.
North Iowa M. S.
*Northwestern M. A.
*Plymouth County M. S.
Pocahontas District M. S.
Polk County M. S.
Ringgold County M. S.
*Scott County M. S.
*Sioux City M. S.
Sioux Valley M. S.
Southwestern Iowa M. S.
Spirit Lake Med. Association.
*Story County M. S.
Wapello County M. S.
Wapsie Valley Med. Ass'n.
Warren County M. S.
Washington County M. S.
Winnebago County M. S.
*Worth County M. S.

KANSAS.

Kansas State M. S.
Bourbon County M. S.
Golden Belt M. S.
Leavenworth County M. S.
South-East Kansas M. S.
Topeka Acad. of Med. & Surg.
Wyandotte M. S.

KENTUCKY.

Kentucky State M. S.
*Anderson County M. S.
Boyle County M. S.
*Brashear M. S.
*Carlisle County M. S.
*Carter County M. S.
Central Kentucky M. S.
Clark County M. S.
*Garrard County M. S.
Hardin County M. S.
*Henderson County M. S.
*Kentucky Valley County M.S.
Lexington and Fayette Counties M. S.
*Lincoln County M. S.
*Louisville M. S.
Marion County M. S.
Mason County M. S.
*Midland District M. S.
Muhlenberg County M. S.
*Muldraugh's Hill M. S.
*Nelson County M. S.
Northeast Kentucky M. S.
Owensboro M. S.
Paducah M. and S. S.
*Pulaski County M. S.
*Scott County M. S.
Southeast Kentucky M. S.
*Southwestern District M. S.
*Union County M. S.

LOUISIANA.

Louisiana State M. S.
*Attakapas M. S.
*Avoyelles M. S.
*Baton Rouge M. S.
*Morehouse M. S.
*N. Louisiana M. S.
*Onachitta M. S.
Orleans Parish M. S.
*Shreveport M. S.
*Tensas M. S.
*Warren Stone M. S.

MAINE.

Maine State M. S.

MARYLAND.

Maryland Med. and Chir. Faculty (the State Society).
*Baltimore Med. & Surg. A.
*Clinical Society of Maryland.

MASSACHUSETTS.

Massachusetts M. S.
Barnstable District M. S.
Berkshire District M. S.
Bristol North District M. S.
Bristol South District M. S.
Essex North District M. S.
Essex South District M. S.
Franklin District M. S.
Hampshire District M. S.
Hampden District M. S.
Middlesex South District M. S.
Middlesex East District M. S.
Middlesex North District M. S.
Norfolk District M. S.
Norfolk South District M. S.
Plymouth District M. S.
Suffolk District M. S.
Worcester District M. S.
*Worcester North District M.S.

MICHIGAN.

Michigan State M. S.
Bay County M. S.
*Berrien County M. S.
Calhoun County M. S.
Cheboygan County M. S.
Detroit Acad. of Med.
Detroit Gynecological Society.
*Detroit Med. & Lib. A.
Grand Rapids Acad. of Med.
Kalamazoo Acad. of Med.
Marshall Acad. of Med.
Northeastern District M. S.
Pontiac M. S.
*Upper Peninsula M. S.
Washtenaw County M. S.
Wayne County M. S.

MINNESOTA.

Minnesota State M. S.
*Cannon Valley M. S.
Crow River Valley M. S.
Fillmore County M. S.
Minnesota Acad. of Med.
Minnesota Valley Med. Ass'n.
Hennepin County M. S.
Interurban M. S.
Olmstead County M. S.
Ramsey County M. S.
Southern Minnesota M. S.
South-Western Minn. M. S.

St. Louis County M. S.
Wabasha County M. S.
Winona County M. S.

MISSISSIPPI.

Mississippi State M. S.

MISSOURI.

Missouri M. A.
Atchison County M. S.
*Boone County M. S.
*Buchanan County M. S
*Carroll County M S.
Cedar County M. S.
Central Missouri District M. S.
Chariton County M. S.
*Clay County M. S.
*Dade County M. S.
*Eldorado Springs M. S.
Franklin County M. S.
Grand River District M. S.
Hannibal M. S.
*Harrison County M. S.
Henry County M. S.
Hodgen M. A.
Howard County M. S.
Independence Med. S.
Jackson County M. S.
Jasper County M. S.
John McDowell M. A.
*Joplin M. S.
Kansas City Acad. of Med.
Kansas City District M. S.
Lafayette County M. S.
Limton District M. S.
Macon County M. S.
Memphis M. S.
Montgomery County M. S.
North Missouri District M. S.
*Northeast Mo. Dist. M. S.
Northwest Missouri M. S.
Pettis County M. S.
Pike County M. S.
Putnam County M. S.
Rolla District M. S.
Saline County M. S.
Shelby County M. S.
Southwest Mo. Dist. M. S.
Springfield M. S.
*State Line M. S.
*St. Louis Acad. of M & S. Sci.
St. Louis M. S.
St. Charles County M. S.
St. Joseph M. S.
Western Surg. and Gyn. A.

MONTANA.

Montana M. S.
Park County M. S.
*Silver Bow County M. S.

NEBRASKA.

Nebraska State M. S.
Elkhorn Valley M. S.
Omaha M. S.
*Otoe County M. S.
Southeastern Neb. M. S.
Lincoln M. S.
Loup Valley District M. S.
*York County M. S.

NEVADA.

Nevada State M. S.

NEW HAMPSHIRE.

New Hampshire State M. S.
Carroll District M. S.
Central District M. S.
Cheshire County M. S.
Conn. River Valley M. S.
Manchester M. A.
Nashua M. A.
Rockingham District M. S.
Strafford District M. S.
White Mountain M. S.
White River District M. S.
Winnepesaugee Acad. Med.

NEW JERSEY.

New Jersey State M. S.
Atlantic County M. S.
Bergen County M. S.
Burlington County M. S.
Camden County M. S.
Cape May County M. S.
Cumberland County M. S.
Essex County M. S.
Gloucester County M. S.
Hudson County M. S.
Hunterdon County M. S.
Mercer County M. S.
Middlesex County M. S.
Monmouth County M. S.
Morris County M. S.
Ocean County M. S.
Passaic County M. S.
Salem County M. S.
Somerset County M. S.
Sussex County M. S.
Union County M. S.
Warren County M. S.

NEW MEXICO.

New Mexico M. S.
Bernalillo County M. S.
*Las Vegas M. S.

NEW YORK.

New York State M. A.
*Genesee County M. A.
Hornellsville M. and S. A.
Kings County M. A.
New York County M. A.
Ontario County M. S.
Med. Ass'n of Troy and Vicinity
*Wyoming County M. A.

NORTH CAROLINA.

North Carolina State M. S.
Buncombe County M. S.
Charlotte M. S.
Raleigh Acad. of Med.
*Rowan County M. S.

NORTH DAKOTA.

North Dakota State M. S.

OHIO.

Ohio State M. S.
Adams County M. S.
Allen County M. S.
Ashland County M. S.
Ashtabula County M. S.
Belmont County M. S.
Brown County M. S.
Butler County M. S.
Central Ohio M. S.
Champaign County M. S.
Cincinnati Acad. of Med.
Clarke County M. S.
Clermont County M. S.
Cleveland M. S.
Clinton County M. S.
Columbus Acad. of Med.
Crawford County M. S.
Cuyahoga County M. S.
Defiance County M. S.
Delaware County M. S.
Eastern Ohio M. S.
East Liverpool M. S.
Erie County M. S.
Gallia County M. S.
Greene County M. S.
Hancock County M. S.
Hempstead Mem. Acad.
Highland County M. S.
Holmes County M. S.
Jackson County M. S.
Jefferson County M. S.
Lorain County M. S.
Lucas County M. S.
Mahoning County M. S.
Mansfield Acad. of Med.
Marion County M. S.
Meiggs County M. S.
Miami County M. S.
Miami Valley M. S.
Montgomery County M. S.
Morrow County M. S.
Muskingum County M. S.
North Central Ohio M. S.
Northwestern Ohio M. A.
Perry County M. S.
Pickaway County M. S.
Pike County M. S.
Portage County M. S.
Ross County M. S.
Sandusky County M. S.
Shelby County M. S.
*Springfield Acad. of Med.
Stark County M. S.
Stillwater M. A.
Toledo M. A.
Tuscarawas County M. S.
Union M. A.
Union M. A. of N. E. Ohio.
Warren County M. S.
Washington County M. S.
Wayne County M. S.

OKLAHOMA.

Oklahoma Territorial M. S.

OREGON.

Oregon State M. S.
Portland M. S.
South Oregon M. S.

PENNSYLVANIA.

Pennsylvania State M. S.
Allegheny County M. S.
Armstrong County M. S.
Beaver County M. S.
Bedford County M. S.
Berks County M. S.
Blair County M. S.
Bradford County M. S.
Bucks County M. S.
Butler County M. S.
Cambria County M. S.
Carbon County M. S.
Centre County M. S.
Chester County M. S.
Clarion County M. S.
Clearfield County M. S.
Clinton County M. S.
Columbia County M. S.
Crawford County M. S.
Cumberland County M. S.
Dauphin County M. S.
Delaware County M. S.
Elk County M. S.
Erie County M. S.
Fayette County M. S.
Franklin County M. S.
Greene County M. S.
Huntington County M. S.
Indiana County M. S.
Jefferson County M. S.
Juniata County M. S.
Lackawanna County M. S.
Lancaster County M. S.
Lawrence County M. S.
Lebanon County M. S.
Lehigh County M. S.
Luzerne County M. S.
Lycoming County M. S.
McKean County M. S.
Mercer County M. S.
Mifflin County M. S.
Montour County M. S.
Montgomery County M. S.
Northampton County M. S.
Perry County M. S.
Potter County M. S.
Philadelphia County M. S.
Schuylkill County M. S.
Somerset County M. S.
Susquehanna County M. S.
Tioga County M. S.
Venango County M. S.
Warren County M. S.
Washington County M. S.
Westmoreland County M. S.
York County M. S.

RHODE ISLAND.

Rhode Island State M. S.

SOUTH CAROLINA.

South Carolina State M. S.
Anderson County M. S.
Greenville County M. S.
Laurens County M. S.
Med. Soc. of S. Carolina.
Richland County M. S.
Sumter County M. S.
Union County M. S.

SOUTH DAKOTA.

South Dakota State M. S.
Minnehaha M. S.

TENNESSEE.

Tennessee State M. S.

TEXAS.

Texas State M. S.
Austin District M. S.
Brazos Valley M. A.
*Briggs M. S. of Ellis County
*Caldwell County M. S.
Central Texas M. S.
Cooke County M. S.
East Line M. A.
East Texas M. S.
*El Paso County M. S.
Johnson County M. S.
North Texas M. A.
*Phys & Surgs. M. A., Bell Co.
South Texas M. A.
Terrell M. A.
Waco M. S.
Western Texas M. A.
Williamson Bell Milan County M. S.

UTAH.

Utah State M. S.
Salt Lake County M. S.
Salt Lake Acad. Med.
Weber County M. S.
*Weber County Acad. of Med.

VERMONT.

Vermont State M. S.

VIRGINIA.

Virginia State M. S.

WASHINGTON.

Washington State M. S.
Kings County M. S.
Pierce County M. S.
Spokane County M. S.
Thurston County M. S.
Whitman County M. S.

WEST VIRGINIA.

West Virginia State M. S.
Charleston M. and S.
Harrison County M. S.
Ohio County M. S.

WISCONSIN.

Wisconsin State M. S.
Ashland County M. S.
*Barron County M. S.
Brainerd M. S.
Brown County M. S.
Central Wisconsin M. S.
*Douglas County M. S.
Fox River Valley M. S.
Inter-County M. S.
La Crosse County M. S.
*Manitowoc M. S.
Milwaukee M. S.
Northwestern Wis. M. A.
Sheboygan County M. S.
*Vernon County M. S.
Waukesha County M. S.

WYOMING.

Wyoming State M. S.

Societies marked with an asterisk have been added since the last publication of this list.

Any society omitted should send to the office of the Secretary notice to that effect *accompanied by a certificate from the secretary of the State society that said society is so recognized in accordance with the above quoted law relating to representation.*

Secretaries are earnestly requested to forward *at once* lists of their delegates.

In order that the Secretary may be enabled to erase from the roll the names of those who have forfeited their membership, the secretaries are, by *special resolution*, requested to send to him, annually a corrected list of the membership of their respective societies.

GEORGE H. SIMMONS, Secretary,
61 Market Street, Chicago.

Deaths and Obituaries.

JOSEPH HARRISON VONDY, M.D., died at his home in Jersey City, N. J., April 2. He was born in New Brunswick, Canada, in 1829, and was graduated from the New York University Medical College in 1851. As a resident of Jersey City throughout his professional life he became widely known for his public spirit. Among his good works the estabishment of the City Hospital is noted. He leaves a widow and two sons.

RUFUS W. DASHIELL, M.D., died at Princess Anne, Md., March 28, of Bright's disease. He was born in 1850, educated at St. John's College, Annapolis, studied medicine under Prof. Nathan R. Smith, and was graduated from the College of Physicians and Surgeons, Baltimore, in 1872. He had been a member of the State Lunacy Board since 1893.

JOHN STERLING BIRD, M.D., College of Physicians and Surgeons, N. Y., 1863, died from pneumonia, April 3. He was born in Winchester, Conn., Aug. 29, 1836. He opened an office in Hyde Park, Dutchleys Co., N. Y., in 1865, and in that village passed the remainder of his life.

Q. C. FARQUHAR, M.D., California, Pa., died March 28. He was a graduate of the University of Pennsylvania, class of 1877, and practiced twenty years at Centerville and two at California. He was a member of the AMERICAN MEDICAL ASSOCIATION.

WILLIAM CAMAC, M.D., Philadelphia, died April 3, aged 71 years. Dr. Camac served with distinction in the Civil War, and later located in Philadelphia. He was a graduate of the Jefferson Medical College.

ALEXANDER J. G. DEVRON, M.D., died in New Orleans, La., March 24. He was an ex-surgeon, Confederate States Army, ex-member of the Louisiana State Board of Health, and a member Royal Microscopical Society of England.

JAMES L. DICKEN, M.D., Wabash, Ind., died March 26. He was born in 1821, and was graduated from the Ohio Medical College at the age of 30 years. During the Civil War he was surgeon of the 47th Indiana Infantry.

JAMES CUMMISKEY, M.D., Jefferson, 1856, died from pneumonia, at his home in Philadelphia, March 25, aged 64 years. He was for many years physician-in-chief to St. Mary's Hospital.

JOHN MILTON WORTH, M.D., died at Asheboro, Md., April 5, aged 89. He served five terms in the State Senate and was State treasurer from 1876 to 1884.

BENJAMIN F. SHAW, M.D., University Medical College, Kansas City, Mo., 1892, was fatally shot April 1, by his brother-in-law, once an inmate of a sanitarium.

FRANKLIN B. KELLER, M.D., Pottstown, Pa., died from septicemia, March 24. He was a graduate of the Jefferson Medical College, class of 1874.

J. N. FOLWELL, M.D., died in New Orleans, La., March 31, aged 71 years. He was graduated from Jefferson Medical College in 1847.

G. L. HUMPHREY, M.D., died in Monroe, Neb., March 30. He was graduated from Jefferson Medical College in 1874.

EDWARD MULHERON, M.D. University of Buffalo, N. Y., 1872, died at his home in Binghamtom, N. Y., April 6, aged 53 years.

A. J. BACON, M.D., Rush Medical College, 1864, died at his home in Gardina, Cal., March 30.

BENJAMIN A. CARR, M.D., of Anne Arundel County, Md., University of Maryland, 1853, was found dead in bed March 21. He was 68 years of age.

A. J. MURBACH, M.D., Archbold, Ohio, of pneumonia, March 26, aged 62 years.

GEORGE A. WILSON, M.D., Rush Medical College, 1866, died at his home in Peoria, Ill., April 7.

FRANCIS G. WARREN, M.D., Jefferson, 1861, died in Biddeford, Me., aged 72 years, April 2.

FRANK B. KELLER, M.D., Jefferson Medical College, 1874, died in Pottstown, Pa., March 24, aged 51 years.

ALPHONSUS JOSEPH FITZGERALD, M.D., Bellevue, N. Y., 1889, died at his home in New York City, from pneumonia, March 29.

We also note the following deaths:

J. M. LAYMAN, M.D., Maysville, Ala., March 23, aged 74 years.

EDWIN M. SMITH, M.D., Philadelphia, died March 29, aged 77 years. He was a graduate of the Jefferson Medical College.

JAMES HAMER, M.D., Collegeville, Pa., died March 24, aged 81 years. He was a graduate of the University of New York.

CHARLES WOOSTER BUTLER, M.D., in Jamaica, N. Y., March 25.

DEATHS ABROAD.

The prominent Munich physician, Dr. F. E. Aub, succumbed to an apoplectic attack, March 16, in the Bavarian legislature, of which he had been a member for thirty years.

PROF. J. HOFMOKL, a prominent Vienna surgeon, recently died from heart disease, which compelled him to resign his chair a year ago.

Among other recent deaths abroad we note that of Prof. K. v. Mosengeil, of Bonn, and Professor Tschurtschenthaler, of Innsbruck.

Miscellany.

Unna's Prize.—The prize of 300 marks, offered by Unna for 1900, is for the best study of the finer architecture of cutaneous cancers, with special regard to the connection between proliferation of epithelium and resistance of connective tissue. Articles are to be sent to Leopold Voss, Hohe Bleichen 34, Hamburg, before December 1.

Position and Presentation.—In the article by Dr. F. A. Stahl, in last week's JOURNAL, the following descriptive text should accompany the illustrations on pages 841 and 842: "Fig. 1—Position: First vertical (*a*). Presentation: Originally either a left occipito-anterior or a right mento-posterior," instead of right occipito-posterior. "Fig. 4—The controlling tape passed about the wrist is held here by the right hand of an assistant; to turn, the operator enters the uterine cavity with his right hand, etc."

Hospital Hygiene.—Letulle asserts that various signs tend to indicate that the year 1900 will inaugurate a new era in hospital hygiene at Paris, and as surgical and obstetric services have now reached the limits of perfection, compulsory asepsis in the medical wards will in time be accomplished. As at present conducted, he states in a communication to *Presse Med.*, March 29, if subjects with cancer or any lingering non-bacillary affection sojourn for a few weeks in a Paris hospital, the rule is that they finally die of pulmonary tuberculosis. He draws a picture of the enormous proportion of hospital attendants who succumb to tuberculosis. Among the Augustin nuns at the Hotel Dieu, who number about 113, there have been 102 deaths during the last twenty-four years, and over 80 per cent. were due to pulmonary tuberculosis. It also affects numbers of medical students from the country, who arrive in superb health but succumb to the infection in two or three years.

Preliminary Training for Medicine.—The *Deutsche Revue* publishes an article by Prof. Hans Buchner, on this subject, which is a strong plea for higher standards of admission to the study of medicine, instead of lowering the standards, as has been done in France and Russia, which have decided to

accept the diploma of the technical schools. This step is being urged also in Germany in certain non-medical circles. The tendency of the day, he observes, is to regard medicine more and more as a technical profession. All physicians protest against this view. They realize that, as Herbert Spencer prophesied, they are to be the guides of the people, and for this exalted task the broadest educational foundations are required. Pettenkofer compares the study of the classics and mathematics to mother's milk, "part of the living body and indispensable to the nourishment of the developing intellect," and Buchner warmly endorses his views.

NEW PATENTS.

Patents of interest to physicians, etc., March 20 to 27.

645,908. Fracture apparatus, Carl Boegle, Munich, Germany.
645,644. Vaporizer, Olin A. Johnston, New York, N. Y.
645,901. Hernial truss, Patrick Madden, Soldiers' Home, Los Angeles, Cal.
645,566. Device for injecting powders into the nasal passages, Charles H. Murphy, Madisonville, Ky.
645,740. Artificial hand and arm, Henry Schenk, Sandusky, Ohio.
645,741. Inhaler, Walter W. Winton, Scranton, Pa.
646,073. Pessary, Henry A. Hempel, Gotha, Fla.
646,034. Making medicinal products, Heinrich Oppermann, Bernburg, Germany.
646,194. Bed-robe for invalids, Mary E. Sims, San Angelo, Texas.
32,399. Design, Atomizing tip for spraying apparatus, Wayne H. Rice, assignor to R. W. & S. M. Rice, Windsor, Conn.

Queries and Minor Notes.

FOR SALE TO BEST BIDDER.

The following advertisement, which appeared in an Ohio newspaper, shows the way it is going in that state:

"NOTICE.

———, Ohio, March 19, 1900.

The Trustees of ——— Township will receive bids until 12 o'clock noon, on Tuesday, April 3, 1900, from those who will furnish the necessary medical and surgical skill, and perform the duties of Health Officer for the poor of ——— Township, and all who may come under our care for one year from April 15, 1900.

Specifications may be obtained from the clerk."

PRACTICE IN WEST VIRGINIA.

DETROIT, MICH., April 6, 1900.

To the Editor.—Would you kindly inform me regarding the medical laws of West Virginia? I am a graduate of the Detroit Medical College, four years' course, and am thinking of locating in the South and would like to know whether it will be necessary for me to take a state examination or not. F. J. McD.

ANSWER:—No one is allowed to engage in the practice of medicine in West Virginia without having passed an examination by the State Board of Health and received its certificate. The charge for the examination is $10. Examinations are held at least three times a year. The secretary of the Board is Dr. A. R. Barbee, Point Pleasant, W. Va.

BOOK ON CANCER CURES WANTED.

H. B. W., Oxford, Me., desires to procure a late work on the "cure of cancers," one that contains formulæ for the removal by topical applications.

The Public Service.

ARMY CHANGES.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., March 23-29 inclusive:

Frederick J. Combe, major and surgeon, Vols., from New York City, to the Department of California.

Douglas F. Duval, lieutenant and asst.-surgeon, U. S. A., from San Francisco, Cal., to Manila, P. I., reporting on arrival for temporary duty in the Department of the Pacific until the hospital ship *Missouri* returns to Manila.

Euclid B. Frick, captain and asst.-surgeon, U. S. A., member of a promotion board at Governor's Island, N. Y.

Harry C. Gemmill, acting asst.-surgeon, from Logansport, Ind., to Fort Thomas, Ky.

Chester L. Hodgkins, acting asst.-surgeon, from Washington, D. C., to the Department of California.

Henry S. Kilbourne, major and surgeon, U. S. A., member of a board to inquire into all the facts relating to the fitting up and equipment of the hospital ships *Relief* and *Missouri*, including their condition at the time of purchase by the United States, and particularly to report upon the present condition of these ships, their seaworthiness, their adaptation for hospital purposes and the sums necessary to put them in condition to meet the requirements of the hospital service, the reasons why they are not seaworthy or in condition for hospital service, if such be the case, and if such reasons are found in the character of the work done upon them since their purchase by the Government, to fix the responsibility therefor.

William L. Kneedler, captain and asst.-surgeon, U. S. A., from San Francisco, Cal., to Manila, P. I., reporting on arrival for temporary duty in the Department of the Pacific until the hospital ship *Missouri* returns to Manila.

Millard Langfield, acting asst.-surgeon, from Omaha, Neb., to the Department of California.

Edward Lyon, Jr., acting asst.-surgeon, Fort Schuyler, N. Y., leave of absence granted.

James N. McCall, acting asst.-surgeon, from St. Francis Barracks, Fla., to Fort Schuyler, N. Y.

John L. Phillips, captain and asst.-surgeon, U. S. A., member of an army promotion board at Governor's Island, N. Y.

NAVY CHANGES.

Changes in the Medical Corps of the U. S. Navy for the week ending March 31, 1900.

Assistant-Surgeon J. T. Kennedy, ordered to additional duty at the marine recruiting rendezvous, San Francisco, Cal.

Pharmacist J. F. Pearson, appointed pharmacist from March 26.

MARINE-HOSPITAL CHANGES.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the U. S. Marine-Hospital Service for the seven days ended March 29, 1900.

Surgeon Eugene Wasdin, to report at Washington, D. C., for special temporary duty.

Surgeon L. L. Williams, leave of absence for two days (paragraph 179, Regulations, M.H.S.) from March 27, 1900.

Asst.-Surgeon T. D. Berry, to proceed to New Orleans, La., and report to the medical officer in temporary charge for duty and assignment to quarters.

APPOINTMENT.

Thomas D. Berry, of Texas, commissioned as assistant-surgeon.

HEALTH REPORTS.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, U. S. Marine-Hospital Service, during the week ended April 7, 1900.

SMALLPOX—UNITED STATES.

Alabama: Mobile, March 24-31, 1 case.
Florida: Jacksonville, March 24-31, 2 cases.
Indiana: Evansville, March 24-31, 5 cases.
Kansas: Wichita, March 24-31, 8 cases.
Kentucky: Covington, March 24-31, 12 cases, 1 death; Lexington, March 24-31, 1 case.
Louisiana: New Orleans, March 24-31, 64 cases, 21 deaths.
Massachusetts: Boston, March 24-31, 1 case.
Michigan: Detroit, March 24-31, 4 cases.
Nebraska: Omaha, March 24-31, 1 case.
New Mexico: Catskill, March 21, 2 cases; Folsom, March 21, 5 cases.
New York: New York, March 24-31, 1 case.
Ohio: Cleveland, March 24-31, 17 cases.
Utah: Salt Lake City, March 24-31, 1 case.
Washington: Spokane, March 24-31, 1 case.

SMALLPOX—FOREIGN.

England: Liverpool, March 10-17, 1 case; London, March 3-17, 12 cases.
France: Lyons, March 3-10, 2 deaths; Rheims, March 3-10, 8 deaths.
Gibraltar: March 4-18, 14 cases.
India: Bombay, February 20-27, 263 deaths; February 27 to March 6, 269 deaths; Calcutta, February 10-24, 26 deaths; Kurrachee, February 18 to March 4, 32 cases, 15 deaths.
Japan: Yokohama, February 24 to March 3, 1 case.
Korea: Seoul, January 20-27, 2 cases, 1 death.
Spain: Madrid, March 3-17, 22 deaths.

YELLOW FEVER.

Colombia: Panama, March 7-14, 7 cases.
Cuba: Havana, March 17-24, 2 cases, 1 death.

CHOLERA.

India: Bombay, February 20 to March 6, 19 deaths; Calcutta, February 10-24, 130 deaths.

PLAGUE—INSULAR POSSESSIONS, U. S.

Hawaii: Honolulu, March 10-17, 2 cases, 1 death.

PLAGUE—FOREIGN.

Arabia: Aden, February 22 to March 10, 22 cases, 13 deaths.
India: Bombay, February 22 to March 6, 1468 deaths; Calcutta, February 10-24, 460 deaths; Kurrachee, February 18 to March 4, 92 cases, 73 deaths.
Japan: Formosa, January 1 to February 28, 97 cases, 78 deaths.

CHANGE OF ADDRESS.

Dr. W. E. Baxter, from 553 to 419 Boylston St., Boston, Mass.
Dr. J. C. Bird, from Kansas City to 925 N. 19th St., St. Louis, Mo.
Dr. R. C. Elmore, from Nashville, Tenn., to Acona, Miss.
Dr. C. C. Echols, from Augusta to Athens, Ga.
Dr. M. D. Fletcher, from 2264 to 2248 Central Ave., Alameda, Cal.
Dr. H. B. Graeser, from Kensett to 947 W. 19th St., Des Moines, Iowa.
Dr. R. F. Godard, from Augusta to Hazelhurst, Ga.
Dr. W. D. Gholston, from Augusta to Danielsville, Ga.
Dr. H. F. Glenn, from Atlanta, Ga., to Bethel, S. C.
Dr. B. M. Hopkinson, from 1325 Park Ave. to 1435 Bolton St., Baltimore, Md.
Dr. Lee Haynes, from St. Louis to Unionville, Mo.
Dr. W. P. Kemp, from St. Louis to Hale, Mo.
Dr. C. W. McCarty, from Kansas City, Mo., to Scottsville, Kan.
Dr. R. H. Mobley, from Augusta to Lumber City, Ga.
Dr. H. H. Moody, from Mobile to Bailey Springs, Ala.
Dr. W. A. Robinson, from Kansas City to Amsterdam, Mo.
Dr. C. Trueblood, from Chesterfield, to Anderson, Ind.
Dr. J. B. Wharton, from Atlanta, Ga., to Arcadia, La.